Southern Fleurieu Coastal Action Plan

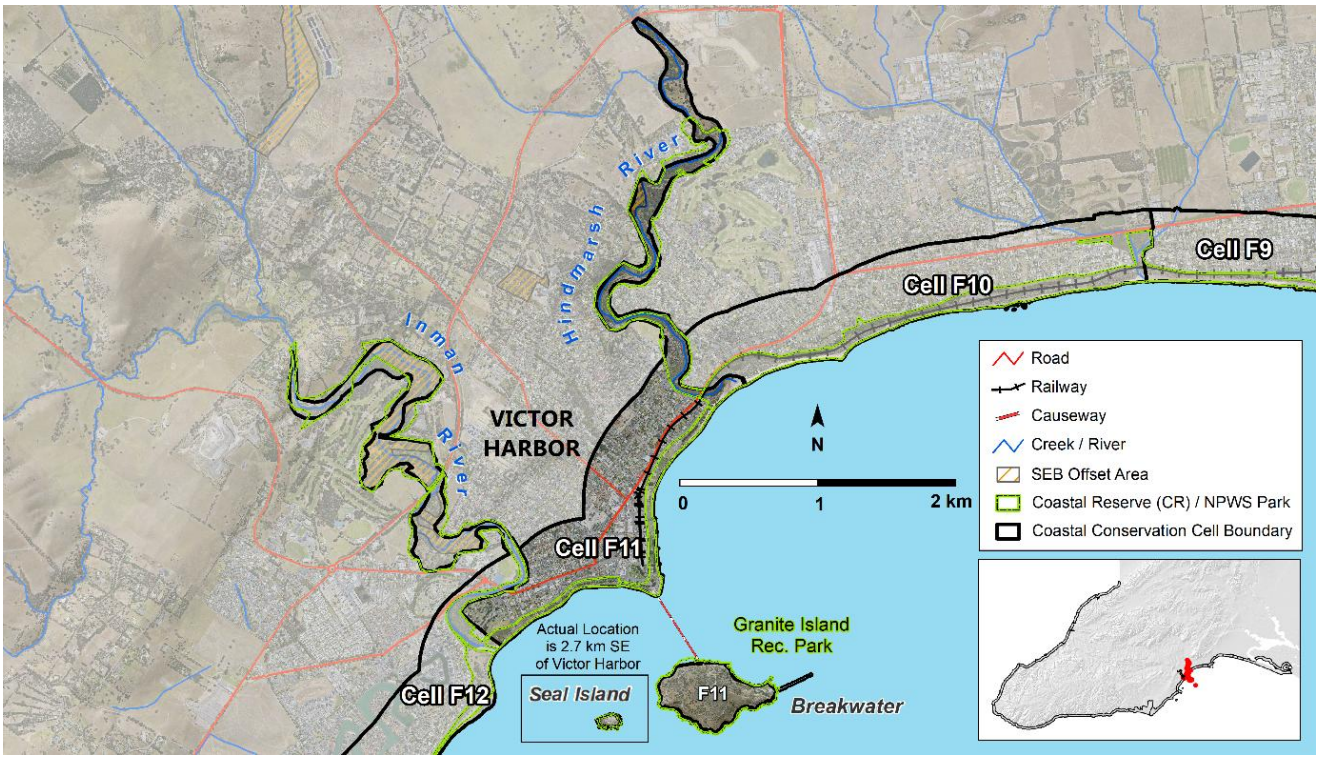
Victor Harbor (Pultang) (Hindmarsh River (Latung) to Inman River (Muwerang) including Granite (Kaiki) and Seal (Yandi) Islands)

Cell F11

Overview

Despite a small geographic area, this cell supports a variety of coastal and marine habitats, including river, a large estuary, coastal dunes and two offshore islands. The Hindmarsh River estuary supports a large diversity of plants and animal species, many of conservation significance or concern. Nearshore environments host a large diversity of reefs, seagrass and macroalgae species, which in turn support a great diversity of marine fish and invertebrates.

Large areas of urban and lifestyle development occurring within the cell combine with pressure from stormwater and garden escape weeds to be an ongoing threat to natural areas. Estuary flow and condition requires ongoing monitoring and management to protect ecological values, with limited connectivity to the marine environment. Tourism pressures are highly evident in this cell, with high visitation to Granite Island, surrounding beaches and coastline, particularly during summer and winter whale watching seasons.



Cell Detail

Cell extends from Hindmarsh River estuary (including upper reaches where seawater incursion occurs during tidal inflows) approximately 3km to the eastern edge of the Inman River estuary entrance. This cell also includes two offshore islands – Granite (Kaiki) and Seal (Yandi) Islands. The cell is within the City of Victor Harbor local government area.

Tenure, Land Use and Values

A privately owned highly urbanised residential allotments are the main landowners in the cell and includes the main township of Victor Harbor. Crown land under care and control of the Council along Hindmarsh River and in narrow coastal reserves. The coastal reserves adjacent to the Causeway to Granite Island, and on both sides, are given over to recreational activities.

The SteamRanger railway corridor traverses this cell, from the northeastern boundary to its centre, and occupies a large portion of the rear of the coastal dunes. Granite and Seal Islands are managed by NPWSSA and since 2012 the waters surrounding their shores are located within the boundaries of the Encounter Marine Park. A 1.8 hectare area within the Hindmarsh River mid estuary is proclaimed a Significant Environment Benefit (SEB) Area (Ref 2022_3052) that has protection under the Native Vegetation Act 1991.

Native title has been determined for Ngarrindjeri people over land and sea Country within this cell under the *Native Title Act 1993 (Cth).*

The narrow coastal reserves are a major recreational resource for residents and visitor. The area experiences large fluctuations in population due to the visitation from tourists throughout the year (summer and winter). The area between the caravan park, the Inman River and foreshore is significant and highly visible piece of coastal open space. Granite Island Recreation Park is a popular recreation site with coastal and ocean views from the island footpaths and walking trail (Kaiki Trail) and known location to view the Little Penguins (*Eudyptula minor novaehollandiae*). Ecotourism from penguin tours and boat trips from the causeway visiting local nearshore marine waters and offshore island operate seasonally.

The cell is utilised for recreational fishing, diving, boating, swimming and walking. The beach is used for launching boats in several locations. The offshore reefs are important habitat and recreational fishing areas for Southern rock lobster (*Jasus edwardsii*) and various fish species. Bryars (2013) describes the inshore beaches, seagrasses and reefs are important habitat and recreational fishing areas for species such as Southern Garfish (*Hyporhamphus melanochir)* and King George Whiting (*Sillaginodes punctatus).* Some of the reefs are recognised fishing and diving sites, including the reefs around Granite Island. 'Whalebones' is a reef system that is a recognised recreational diving site (see Fig 11.3).

Several coastal community groups are working along the coastal dunes (Victor Harbor Coastcare), Hindmarsh River and estuary (Friends of Hindmarsh River Estuary), and Granite Island (Friends of Granite Island) and have undertaken a range of conservation and restoration activities across this cell, including species monitoring, extensive weed control and revegetation, significantly increasing habitats and species diversity values. Friends of the Hooded Plover Fleurieu Peninsula (supported by BirdLife Australia) and Team Oystercatcher volunteers (SA Shorebird Foundation) monitor and raise awareness of beach nesting and shorebird species within the cell.

Landforms

Inman floodplain and the lower Hindmarsh are incised into a relatively flat coastal plain. Low narrow line of dunes, with a narrow low energy beach. Beach plan-shape forms appear to be controlled by the refraction wave patterns resulting from reefs and islands. Offshore reefs and islands reflect the inherited surface form of the granite batholith (Caton et al 2007).

Granite Island is listed as the Encounter Bay Region – Granite Island geological monument (reference 1331) demonstrating Encounter Bay Granite. It is also listed as a state heritage place (reference 11050) Granite Island Causeway, Screw-pile Jetty, breakwater & cutting, partly located within Granite Island Recreation Park and displaying natural features of special interest.

Victor Harbor and the Causeway to Granite Island (Coast Protection Board, March 2024)

First Nations cultural heritage and connection to land and sea Country

This cell holds high cultural value and significance for the Ramindjeri people of the Ngarrindjeri Nation. It forms part of their Dreaming stories and contains numerous stories, places, and artefacts of cultural importance. Ramindjeri cultural heritage is present throughout the entire cell, everywhere you tread. The Ramindjeri lived, hunted, played, swam, and danced here. Those working within and restoring these areas may encounter artefacts or evidence of cultural significance to the Ramindjeri people and the broader Ngarrindjeri Nation. These areas must be known, recognised, respected, and protected.

Creeks, wetlands, estuaries, dunes, cliff lines, islands and coastal areas are important gathering places that support a variety of habitats and food sources essential for sustaining and protecting Nga:tji. Nga:tji are the personal totems of the Ngarrindjeri people. They embody deep cultural values, symbolising kinship, spiritual protection, and an embedded responsibility to care for the land, waters, and ecosystems they inhabit.

This cell encompasses a range of culturally significant landscape features, including Dreaming sites, ceremonial grounds, traditional camping areas, and midden deposits scattered throughout the wetlands and sand dunes. It also contains trade pathways once used by Clan groups, linking ceremonial sites in the upper Hindmarsh (Latung) and Inman (Muwerang) River estuaries. These routes illustrate the long-standing relationships between neighbouring clan groups and the exchange of locally sourced materials such as stone tools, food, and other cultural items. The mouth and coastal dunes of the Inman River Estuary (Muwerang) are recognised as significant ceremonial grounds and mark the location of the last known Ramindjeri campground.

This cell is also a particularly important site in the Ngurunderi Creation and Dreaming story, which tells of the Ngarrindjeri people's creation of the land and waters, including the River Murray and its mouth, Kandukang (west) and Tapalwora (east). This ancestral narrative extends westward along the southern coast of the Fleurieu Peninsula, encompassing the rugged shoreline, estuaries, and coastal landscapes all the way to Cape Jervis (Parrewar-angk). These areas hold deep cultural and spiritual significance for the Ramindjeri people, with Dreaming tracks, songlines, and important sites embedded throughout the region.

The coastline with its cliffs, beaches, and native vegetation reflects Ngurunderi's journey as he shaped the land, rested at key locations, and followed the tracks of his wives. Cape Jervis (Parrewar-angk) marks an important point in this story, serving as both a physical and spiritual place in the landscape. It connects the mainland to Kangaroo Island (Ngurungaui), continuing the cultural narrative of creation, movement, and connection to Country.

Within this cell, a Dreaming story recounts Ngurunderi's journey into Pultang (Victor Harbor). As he entered the area, Ngurunderi threw his spears into the sea, and each one formed the islands of Ramong Bay (Encounter Bay). He then crossed over to Kaiki (Granite Island), where he threw another spear, creating Yandi (Seal Island). While making camp on Kaiki, Ngurunderi saw his wives swimming at Ngarakerung (Kings Beach). He struck the ground with his club, giving rise to Longkewar (The Bluff).

The Kondili Dreaming story is associated with many significant sites within this cell. It tells of Kondili emerging from the mouth of Latung (Hindmarsh River Estuary), diving into the sea, and becoming the whale during the winter season. Kondili returns with the young whales to the waters around Pultang (Victor Harbor) and Ramong (Encounter Bay), where they are nurtured until they grow strong. Each winter, the Ramindjeri people hold ceremonies to welcome Kondili home.

The Hindmarsh and Inman River estuaries are also connected to several significant Dreaming and Creation stories, including those of Lime, Palpangye, and Latung.

Please respect that cultural concepts and content included in this plan are the Aboriginal Cultural and Intellectual property (ACIP) of the Ramindjeri people of the Ngarrindjeri Nation (provided by Cedric Varcoe, Ramindjeri Cultural Leader living on Country) (cells 1-20). They may not be used or adapted by any other parties without consent.

Terrestrial Biodiversity

Whole cell

Essentially a suburban cell with small remnant vegetation blocks, those that remain have high conservation values for threatened vegetation associations, for vegetation rare within the state and for total number of species. These high value areas are found adjacent to the Hindmarsh River estuary between Lamont Road and Welch Road, and near the river mouth, Granite Island, and some small coastal reserves on the mainland (Caton et al 2007). Similar to Inman River Estuary (F12), within the urbanised south coast of the Fleurieu Peninsula this area is a biodiversity hotspot, with high values for species richness and threatened species richness.

Several species of conservation significance occur within the cell including Hooded Plover *(Thinornis cucullatus cucullatus*), Black-chinned Honeyeater (*Melithreptus gularis gularis*); Cape Barren Goose (*Cereopsis novaehollandiae novaehollandiae*), Australasian Shoveler (*Spatula rhynchotis*), Glossy Ibis (*Plegadis falcinellus*), Peregrine Falcon (*Falco peregrinus macropus*), Spotless Crake (*Zapornia tabuensis*), Latham's Snipe (*Gallinago hardwickii*), Common Sandpiper (*Actitis hypoleucos*), Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*), Elegant Parrot (*Neophema elegans elegans*), Eastern Shriketit (*Falcunculus frontatus frontatus*) have been recorded in this cell. A number of other bird species have been recorded, including the regionally vulnerable Buff-banded Rail (*Gallirallus philippensis mellori*); a colony of Little Penguin (*Eudyptula minor novaehollandiae*) is found on Granite Island.

Buff-banded Rail (Gallirallus philippensis mellori) (M Stokes)

Dune width varies significantly across the cell, with particularly narrow dune profiles with very limited vegetation for several hundred metres from the causeway to the Hindmarsh River estuary. Areas that remain are important habitat, particularly for coastal birds and reptiles, offering shelter and food resources.

Flora species of conservation significance within the coastal dunes and lagoon include Cup Wattle (*Acacia cupularis*), Coast Wallowa (*Acacia nematophylla*), Annual Celery (*Apium annuum*), Coast Spear-grass (*Austrostipa stipoides*), Lignum (*Duma florulenta*), Thatching Grass (*Gahnia filum*), Muntries (*Kunzea pomifera),* Coast Blown-grass (*Lachnagrostis billardierei ssp. billardierei),* Coast Plover-daisy *(Leiocarpa supina),* Swamp Paper-bark (*Melaleuca halmaturorum),* Nitre-bush (*Nitraria billardierei),* Squat Picris (*Picris squarrosa),* Thick-head Samphire (*Salicornia blackiana),* Coast Fanflower (*Scaevola angustata),* Cushion Fanflower (*Scaevola crassifolia),* Sprawling Bluebell (*Wahlenbergia gracilis*), Narrow-leaf Wilsonia (*Wilsonia backhousei).*

Butterfly species of conservation concern known to exist within the cell include Mottled Grass Skipper (*Anisynta cynone cynone*), Common Xenica (*Geitoneura klugii),* Common Brown *(Heteronympha merope merope),* and multiple common species that are observed across the Fleurieu Peninsula (Stolarski 2024). Mottled Grass Skipper (*Anisynta cynone cynone)* is very localised and restricted to coastal areas where its larval food plants, *Poaceae* (Grasses), both native and introduced, are present. *A. cynone cynone* has a patchy distribution within the region, occurring at; Hindmarsh Island, Sir Richard Peninsula, Goolwa foreshore, Surfers to Goolwa dunes, Port Elliot, Victor Harbor including Granite Island, and Newland Head CP (Stolarski 2024). Potential suitable habitat of Thatching Grass (*Gahnia filum*) for the Yellowish Sedge Skipper (*Hesperilla flavescens)* exist within the estuaries of this cell, but in small population sizes that are currently not large enough to sustain a local population.

The Hooded Plover, vulnerable in South Australia, is known to nest and forage on the upper beach and front of the foredunes, particularly in front of the croquet club (Victor central), the beach area west of the causeway, and Hindmarsh and Inman River estuaries. Seagrass wrack (also known as Beach cast wrack) found regularly on these beaches has an important ecological function – recycling nutrients back to coastal waters as well as protection and providing stabilisation of the shoreline and coastal dunes by acting as a trap that binds drifting sands and reduces sand erosion during winter (PIRSA 2014). Beach wrack also provides an important role as habitat and shelter for

Hooded Plovers (*Thinornis cucullatus cucullatus*) and Pied *(Haematopus longirostris)* and Sooty Oystercatchers *(Haematopus fuliginosus fuliginosus)* as well as other shorebirds and juvenile fish. Beach cast wrack collection within Encounter Marine Park is prohibited in all zones except general managed use zones. Therefore, no removal of beach wrack is permitted in this cell or the Encounter Bay area.

Red-capped Plovers *(Charadrius ruficapillus)* that are semi-colonial nesters are also recorded in this cell. Exposed rocky shores at various points along this cell provide foraging habitats for shorebirds, including Sooty Oystercatchers (*Haematopus fuliginosus fuliginosus)*, occasionally Pied Oystercatchers (*Haematopus longirostris*), and Silver Gulls (*Chroicocephalus novaehollandiae novaehollandiae*) and Pacific Gulls (*Larus pacificus georgii*). Sooty Oystercatchers, Nankeen Kestrel (*Falco cenchroides cenchroides*) and Pacific Gulls are recorded nesting on Granite and/or Seal Islands.

Pacific Gull (Larus pacificus georgii) chicks that hatched on Granite Island (R Shirlaw)

Encounter Bay region is known to support a number of Nationally listed (EPBC Act 1999) migratory bird species, and there is a high likelihood that some of these species also utilise the Hindmarsh River Estuary and associated lagoons (permanent and temporary) (SKM 2010).

Hindmarsh River Estuary

The Hindmarsh and Inman Rivers are recognised estuaries (DEH 2007).

Hindmarsh River estuary and neighbouring dunes support a substantial variety of flora and fauna, considering the large areas of developed land that surround them. Hindmarsh River estuary is still a remarkably rich area for biodiversity values for native flora and fauna species and subspecies and comprises floristically diverse areas, including the mouth, coastal lagoon and patches of intact vegetation in the Estuary Middle area (SKM 2010). The Hindmarsh River estuary also provides important habitat for a range of native birds, amphibians, reptiles, fish, mammals and invertebrates, and supports a relatively high level of biodiversity from a landscape perspective, many of conservation significance (SKM 2010). The Hindmarsh River estuary area is an island-refuge and corridor for many plants and animals, particularly birds. Significant fauna species recorded by SKM (2010) within this cell include; the Black-chinned Honeyeater (*Melithreptus gularis gularis*), Eastern Shriketit (*Falcunculus frontatus frontatus*), Yellow-tailed Black Cockatoo (*Zanda funerea whiteae)*, Yellow-bellied water skink (*Eulamprus heatwolei*), Heath Goanna (*Varanus rosenbergi*), Lewin's Rail (*Lewinia pectoralis pectoralis*), Southern Grass Skink (*Pseudemoia entrecasteauxii*), Restless Flycatcher (*Myiagra inquieta*) and Red-rumped Parrot (*Psephotus haematonotus*). Flora species of conservation significance (SKM 2010) include; Native Orache (*Atriplex australasica*), Pink Gum (*Eucalyptus fasciculosa*), Swamp Lily (*Ottelia ovalifolia ssp. ovalifolia*), Dwarf Skullcap (*Scutellaria humilis*), Shrub Silver Daisy

Bush (*Olearia pannosa ssp pannosa*), Butterfly Spyridium (*Spyridium coactilifolium*), Squat Picris (*Picris squarrosa*), Pale Flax-lily (*Dianella longifolia var. grandis*), Fringed Pseudanthus (*Pseudanthus micranthus*), , Tate's Grass-tree (*Xanthorrhoea semiplana ssp. tateana*), Thatching Grass (*Gahnia filum)* and Swamp Paper-bark (*Melaleuca halmaturorum).*

The estuary, with its associated estuarine vegetation, is uncommon in SA. The strip of near natural vegetation in a built-up area is significant, including valuable Swamp Paper-bark (*Melaleuca halmaturorum)* woodland and temperate Coastal Saltmarsh lagoon (City of Victor Harbor 2023).

Hindmarsh River Estuary and coastal dunes (C Taylor)

This area supports a healthy population of native Swamp Rats (*Rattus lutreolus)* that undertake a range of ecosystem services and are considered common along the Hindmarsh River (SKM 2010). Their burrows can undermine the riverbanks or where native vegetation, or dense grass remains. However, by turning over soils they are promoting seed germination and consuming weed bulbs of many species, preventing germination and spread.

Hindmarsh and Inman Rivers support one of the most stable populations of Black-chinned Honeyeaters (*Melithreptus gularis gularis*) in the Mount Lofty Ranges, a bird species that is experiencing considerable declines elsewhere in the region (City of Victor Harbor 2023).

Recent estuary and freshwater fish surveys (Schmarr et al 2022) in the Hindmarsh River and estuary indicate it supports a diverse range of estuarine and diadromous fish species, as well as some invertebrates. These include Common Galaxias (*Galaxias maculatus*), Climbing Galaxias (*Galaxias brevipinnis*), Congolli (*Pseudaphritis urvillii*), Black Bream (*Acanthopagrus butcheri*), Mulloway (*Argyrosomus japonicus*), Yelloweye Mullet (*Aldrichetta forsteri*), Goldspot Mullet (*Gracilimugil argentea*), Common Yabbie (*Cherax destructor*) and various Goby and Gudgeon species (Schmarr et al 2022). Estuaries along the southern coast are important refuges and nursery grounds for a range of estuary dependent and diadromous fish species. Long-term knowledge of overall catchment health (e.g. water quality, flow patterns, habitat and species) is essential for conserving the ecological value of these systems.

Baseline vegetation surveys along pre-determined reaches (using the Rapid Appraisal of Riparian Condition (RARC) methodology), water quality (dissolved oxygen, turbidity, pH, electrical conductivity, oxygen, redox potential, depth, temperature and total dissolved solids) and nutrients (phosphate, Nitrite, Nitrate, Ammonium) surveys of the

Hindmarsh River estuary were conducted in 2012 (COOE, 2012). The results indicated the Hindmarsh had water quality and riparian condition challenges.

Water quality parameters were above guidelines, indicating generally poor water quality and areas of low dissolved oxygen, anoxic conditions, and high nutrients (COOE, 2012, Schmarr and Thwaites (2020)). Further detailed water quality monitoring (COOE, 2016,) of the Hindmarsh River estuary (October 2014 to August 2016) measuring chemical, physical and microbiological indicators determined similar trends across temperature, salinity, oxygen and nutrient levels, turbidity and coliform bacteria populations.

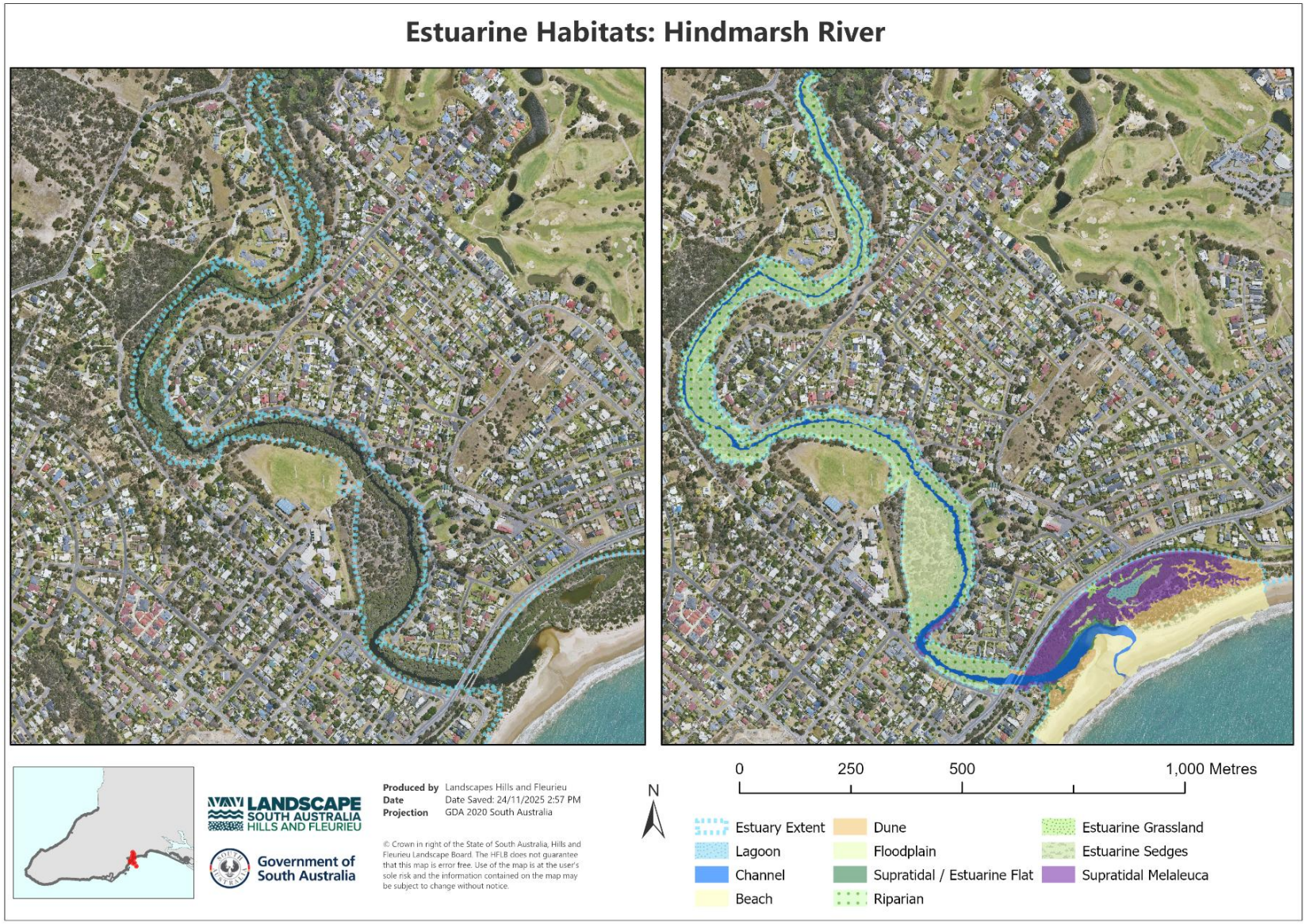


Fig 11.1 Hindmarsh River estuarine habitats

Inman River estuary - See cell F12

Granite and Seal Islands

Granite and Seal Islands are located within this cell and vary substantially, with contrasting ecological values and threats. Ranging from the 24-hectare Granite Island, which is extensively vegetated and visited by over 700,000 people per annum, to the 1.2-hectare Seal Island, a tumbled heap of granite boulders with little soil or vegetation (Telfer and Milne 2016). A key ecological value across all the Fleurieu islands are the large number and diversity of nesting seabirds – within the last 30 years there has been over 14,000 pairs across 10 species that have bred on the islands (Telfer and Milne 2016). Since the 1980's, two breeding seabird species have notably declined in the area; the Fairy Tern (*Sternula nereis nereis*) and Little Penguin (*Eudyptula minor novaehollandiae*). Conversely, Greater Crested Tern *(Thalasseus bergii cristatus)* and Caspian Tern (*Hydroprogne caspia*) numbers have recovered in recent times, due perhaps in part to targeted weed management on some of the islands (Telfer and Milne 2016).

Island and upgraded causeway from the mainland (R Shirlaw)

The offshore islands are refuge and valued habitat for a range of seabird species, including the White-bellied Sea Eagle (*Haliaeetus leucogaster),* Eastern Osprey (*Pandion haliaetus cristatus),* Little Black Cormorant (*Phalacrocorax sulcirostris*), Black-faced Cormorant (*Phalacrocorax fuscescens*), Pacific Gull (*Larus pacificus georgii*) and Kelp Gull (*Larus dominicanus dominicanus*). Irregular sightings of a range of pelagic birds are also reported in this cell, including albatrosses, petrels, shearwaters and gannets.

Seal Island is the furthest offshore island in the cell and an assortment of large granite boulders provide refuge and habitats for seabirds, sealions and fur seals (M Turner)

Southern side of Granite Island with foraging Sooty Oystercatchers in the foreground and The Bluff in the distance (R Shirlaw)

Existing revegetation works on Granite Island have enhanced the diversity of other fauna species present, including regionally significant bird populations of Brown Quail (*Coturnix ypsilophora australis),* Buff-banded Rail (*Gallirallus philippensis mellori*) and Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*). Fauna species recorded on Granite Island include Water-rat (*Hydromys chrysogaster*), Swamp Rat (*Rattus lutreolus*), Western Grey Kangaroo (*Macropus fuliginosus*) and Common Brushtail Possum (*Trichosurus vulpecula*) (Telfer and Milne 2016).

Brown Quail (Coturnix ypsilophora australis) (D Westmoreland)

Western Grey Kangaroos (Macropus fuliginosus) are present in very small numbers on Granite Island. Seal Island in background (R Cutting)

Eight flora species of state or national conservation significance have been recorded on Granite Island, including Native Orache (*Atriplex australasica*), White Correa (*Correa alba var. pannosa*), Sieber's Crassula (*Crassula sieberiana*), Pale Flax-lily (*Dianella longifolia var. grandis),* Clover Glycine (*Glycine latrobeana),* Creeping Boobialla (*Myoporum parvifolium)* and Silver Daisy-bush (*Olearia pannosa ssp. pannosa)* (Telfer and Milne 2016).

Vegetation Communities

Coastal dunes and Shrublands

Coastal Shrublands & Tall Shrublands

- Coast Daisy-bush (*Olearia axillaris) +* Coastal Wattle (*Acacia longifolia ssp. sophorae) +/-*Common Boobialla (*Myoporum insulare) +/-* Coast Beard-heath (*Leucopogon parviflorus)* mid sparse shrubland over Sea-berry Saltbush (*Rhagodia candolleana ssp. candolleana) +/-* *Annual Veldt Grass (*Ehrharta longiflora)* mid tussock grasses over Thyme Riceflower (*Pimelea serpyllifolia ssp. serpyllifolia) + Native Pigface (Carpobrotus rossii) +* Bower Spinach (*Tetragonia implexicoma)*
- Rolling Spinifex (*Spinifex hirsutus) +* *Marram Grass (*Ammophila arenaria)* tussock grassland with emergent Coast Daisy-bush (*Olearia axillaris) +* Coast Cushion Bush (*Leucophyta brownii) +* Coastal Wattle (*Acacia longifolia ssp. sophorae)*
- Coastal Wattle (*Acacia longifolia ssp. sophorae) +* Coast Daisy-bush (*Olearia axillaris)* shrubland / open shrubland
- Coast Saltbush (*Atriplex cinerea) +* Common Boobialla *(Myoporum insulare) +* Coastal Wattle (Acacia *longifolia ssp. sophorae)* open shrubland

Hindmarsh River Estuary and Coastal lagoon

Coastal Swamp Paper-bark Low Open Forests & Tall Shrublands of Saline Swamps

- Swamp Paper-bark (*Melaleuca halmaturorum)* low closed forest over Sea Rush (*Juncus kraussii) +/-* Austral Seablite (*Suaeda australis)* tall sedges over Beaded Samphire (*Salicornia quinqueflora ssp. quinqueflora) +/-* Creeping Brookweed (*Samolus repens) +/-* Southern Sea-heath (*Frankenia pauciflora var. gunnii)*

Hindmarsh River estuary lower to mid reaches

Drooping Sheoak (Allocasuarina verticillata) low woodland

- Drooping Sheoak (*Allocasuarina verticillata)* Low Woodland over an open grassy and herbaceous understorey. Typical understorey plants include Hard Mat-rush (*Lomandra multiflora ssp. dura),* Scented Mat-rush *(Lomandra effusa) +* Wallaby Grass *(Rytidosperma spp.) +* Spear grass *(Austrostipa spp.)*

Eucalyptus forest and woodlands

- *Brown Stringybark (Eucalyptus baxteri) + Messmate Stringybark (Eucalyptus obliqua) +* Pink Gum (*Eucalyptus fasciculosa)* mid woodland over Beaked Hakea (*Hakea rostrata*) + Heath Tea-tree (*Leptospermum myrsinoides) +* Myrtle Wattle (*Acacia myrtifolia)* tall shrubs over Holly Flat-pea (*Platylobium obtusangulum) +/-* Coast Ixodia *(Ixodia achillaeoides ssp. achillaeoides)* low shrubs.
- *Messmate Stringybark (Eucalyptus obliqua) + Cup Gum (Eucalyptus cosmophylla)* +/-Pink Gum (*Eucalyptus fasciculosa)* mid woodland over Beaked Hakea (*Hakea rostrata) +* Heath Tea-tree (*Leptospermum myrsinoides) +/-* Large-leaf Bush Pea (*Pultenaea daphnoides)* tall shrubs over Cushion Ground-berry (*Acrotriche serrulata) +* Small-leaf Raspwort (*Gonocarpus tetragynus) +* Wire Rapier-sedge (*Lepidosperma semiteres) +/-* Prickly Guinea-flower (*Hibbertia exutiacies)* low shrubs.
- *Pink Gum (Eucalyptus fasciculosa)* low woodland over Golden Wattle (*Acacia pycnantha)* low trees and Kangaroo Thorn (*Acacia paradoxa)* mid shrubs and Broad-leaf Raspwort (*Gonocarpus mezianus)* low forbs.

Hindmarsh River estuary upper reaches

Eucalyptus forest and woodland

- River Red Gum *(Eucalyptus camaldulensis spp. camaldulensis)* mid woodland over Golden Wattle (*Acacia pycnantha) +* River Bottlebrush (*Callistemon sieberi)* over *Large Quaking-grass (*Briza maxima) +* Stiff Flat-sedge (*Cyperus vaginatus) +* Kangaroo Grass (*Themeda triandra) + ** African Daisy (*Senecio pterophorus)* mid tussock grasses.

Granite Island (Seal Island is non-vegetated) (Telfer and Milne 2016).

- Drooping Sheoak (*Allocasuarina verticillata)* Woodland occurs on more sheltered slopes on the northern side of the island
- Common Boobialla (*Myoporum insulare) +* Coastal Wattle (*Acacia longifolia* var. *sophorae) +/-* Coast Daisy-bush (*Olearia axillaris)* Shrubland occurs on the north-western and western parts of the island.
- Swamp Paper-bark (*Melaleuca halmaturorum)* Very Low Woodland – several patches in the centre of the island.
- *Coast Sword-sedge (Lepidosperma gladiatum) + Knobby Club-rush (Ficinia nodosa) +* Short-stem Flax-lily (*Dianella brevicaulis)* Sedgeland over Bower Spinach (*Tetragonia implexicoma),* on the southern and western side of the Island, near the steeper edges.
- ** Perennial Veldt Grass (Ehrharta calycina*) + Kangaroo Grass (*Themeda triandra*) + Coast Tussock-grass (*Poa poiformis var. poiformis)* Grassland with Short-stem Flax-lily (*Dianella brevicaulis)* and Soft Tussock Mat-rush (*Lomandra densiflora)* across more central upland parts of the island.
- Drooping Sheoak (*Allocasuarina verticillata), **Moreton Bay Fig (*Ficus macrophylla)* Low Woodland –northern side of the island, adjacent the Causeway.
- Sea-berry Saltbush (*Rhagodia candolleana ssp. candolleana) +* Ruby Saltbush (*Enchylaena tomentosa var. tomentosa)* Very Open Shrubland with emergent Drooping Sheoak (*Allocasuarina verticillata) +* *Aleppo Pine (*Pinus halepensis)* - extends outwards from the beach on the western side of the causeway.
- The low-lying Open Forbland/Shrubland of +/- Round-leaf Pigface (*Disphyma crassifolium ssp. clavellatum*) + Bower Spinach (*Tetragonia implexicoma*) + Ruby Saltbush (*Enchylaena tomentosa var. tomentosa)* + Coast Cushion Bush (*Leucophyta brownii,)* which occurs on the steep, upper rocky slopes that 'skirt' the southern side of Granite Island. * New Zealand Mirror-bush (*Coprosma repens)* and Sea-berry Saltbush (*Rhagodia candolleana ssp. candolleana*) occur as emergents in this very harsh, wind-swept and salt-sprayed area, which is largely inaccessible to humans due to the steep and rocky terrain.

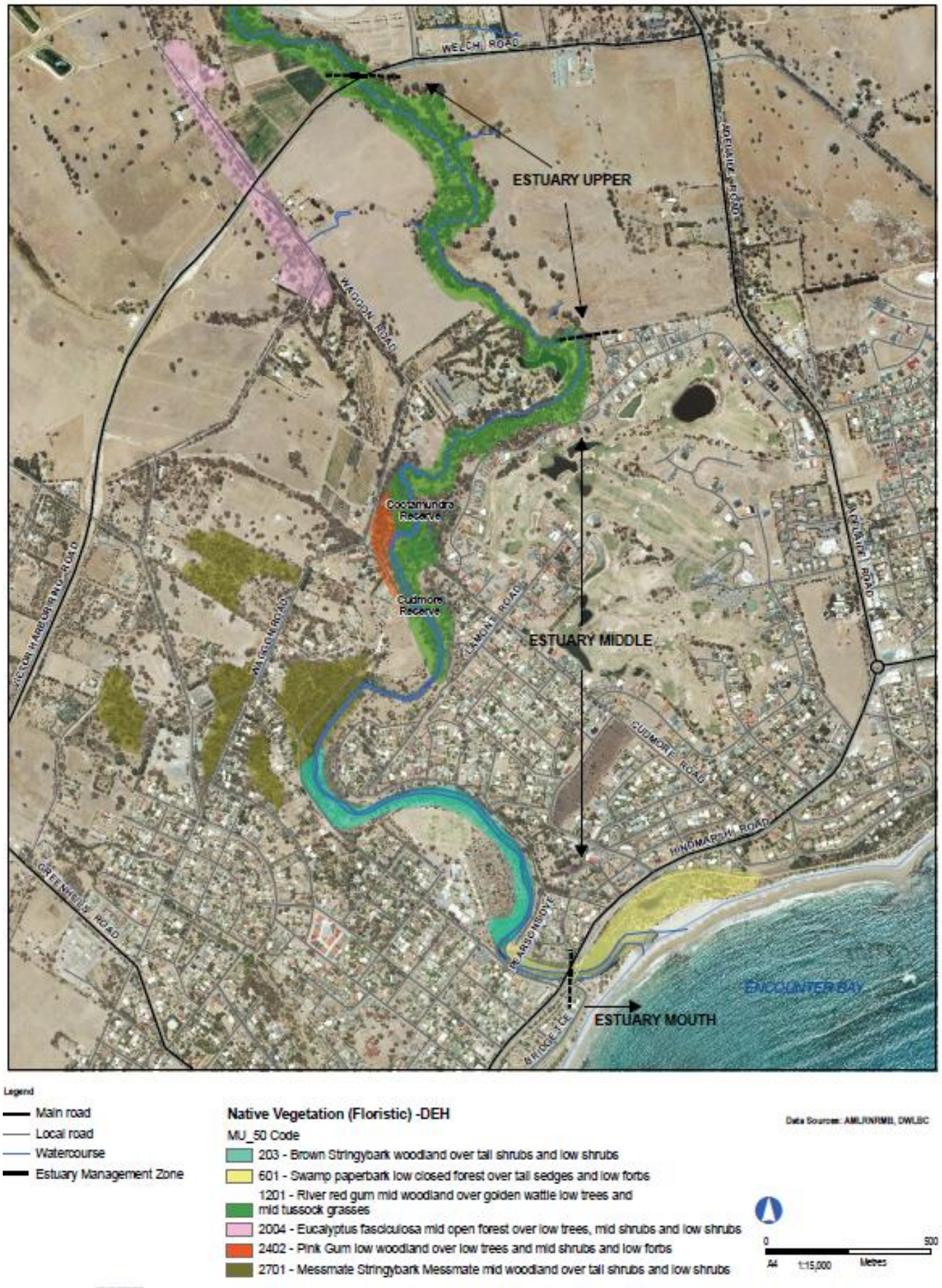


Figure 11.2 Vegetation associations of Hindmarsh River estuary (SKM 2010)

Nearshore Habitats

Whole Cell

This cell forms part of the Encounter Marine Park. Most of the marine areas of cell F11 are within a Habitat Protection Zone (HPZ-7), part of the cell F11 is within a Sanctuary Zone (SZ-6). These areas include part of the nursery grounds for the endangered Southern Right Whale and is part of the designated *Encounter Bay Whale Nursery Protection Area* from the Murray Mouth to The Bluff Victor Harbor. This cell F11 includes Seal Rock, a haul out site for Long-nosed Fur Seals (*Arctocephalus forsteri*) and the endangered Australian Sea Lion (*Neophoca cinerea*).

Bryars (2013) describes the cell as a mosaic of habitat types, being dominated by various seagrass types inshore (especially in the sheltered lee of Granite Island), continuous low-profile reef inshore and midshore (including around Granite Island and 'Whalebones'), bare sand inshore (including beaches) to offshore, and patchy low-profile reef further offshore (figure 11.3)

Seagrass habitat in shallow nearshore waters between Granite Island and the mainland (C Taylor)

The cell is regionally significant (Bryars 2013) due to the complex mosaic of habitat types, including the largest seagrass meadows (along with the adjacent Cell F12) between Cape Jervis to the west and Lacepede Bay in the southeast. Inshore seagrass is rare between Cape Jervis and Lacepede Bay, making Encounter Bay seagrasses regionally significant as habitat (Caton et al 2007). The inshore bare sand is characterised by a low-energy low tide terrace beach system in the east and a low-energy reflective beach system in the west (Short 2001).

The existence of the Hindmarsh and Inman River estuaries are regionally significant. The jetty structures are also significant as a habitat for marine life (Bryars 2013)

Seagrass

Seagrass in the lee of Granite Island is comprised of Wireweed (*Amphibolis antarctica)*, Griffith's Sea Nymph (*Amphibolis griffithii)*, Paddle Weed (*Halophila australis)*, Eeelgrass (*Zostera* sp.), Australian Grass-wrack *(Heterozostera nigricaulis)* and Narrow-leaf Tapeweed *(Posidonia sinuosa)* (Cheshire and Miller 1998, Haig et al. 2006). Seagrass around the mouth of the Inman River is comprised of *Amphibolis* and *Posidonia* (Tanner et al. 2012).

Subtidal reefs

Subtidal reefs in the Encounter Bay region are typically composed of granite or limestone with a cover of macroalgae and sessile invertebrates (e.g. Turner et al. 2007, DEH 2008, Baker et al. 2009, Brook and Bryars 2014, Brook et al. 2020, Brock et al. 2023). The subtidal reef at Whalebones is a calcareous (limestone) reef (Baker et al. 2009). Artificial reefs occur within the cell in the form of the causeway from the mainland to Granite Island (old and new), and the breakwaters and Screwpile Jetty on Granite Island.

Fish, invertebrates and macroalgae diversity

Bryars (2003) listed 10 fish and two macroinvertebrate species for the sheltered beach habitat between the Inman and Hindmarsh Rivers, nine fish and one macroinvertebrate species for the seagrass habitat between Rosetta Head and the Hindmarsh River, 13 fish and two macroinvertebrate species for the unvegetated soft bottom habitat between King Head and Middleton Point, 16 fish and seven macroinvertebrate species for the reef habitat between King Head and Middleton Point, four fish species for the Hindmarsh River estuary, and four fish species for the Inman River estuary.

While the bare sand/ soft bottom and seagrass habitats are likely to support a range of species (e.g. see Bryars 2003), apart from mapping studies that have characterised the sea floor (DEH 2008, Tanner et al. 2012), limited biological surveys appear to have been undertaken on these habitats within Cell F11.

Surveys of the subtidal reefs at Granite Island and Seal Rock have found a high diversity of fishes, invertebrates and macroalgae (Turner et al. 2007, DEH 2008, Bryars and Brook 2014, Brook et al. 2020, Brock et al. 2023). The cell lies inside the Encounter Bay region which is a known 'hot-spot' for macroalgal species diversity (see Baker and Gurgel 2010). Around 50 bony fish species have been recorded at the Screwpile Jetty on Granite Island (See Appendix 3 in Baker et al. 2010). A survey of the benthos off Bridge Terrace in Victor Harbor found a high diversity of seagrasses, macroalgae and invertebrates (Cheshire and Miller 1998).

Southern biscuit star (Tosia australis) and Zoanthid (Zoanthus robustus) (J Hicks)

The reef ecosystem baseline study (Brook et al. 2020), and current study by Brock *et al.* (2023) assessing the trends in the condition of rocky reef ecosystems of the greater Adelaide and Fleurieu Peninsula region, found that the overall status of rocky reefs was stable or improving, based on several key indicators of condition (e.g. fish and macroinvertebrate species richness, community structure, large fish biomass, macroalgae percentage cover, and reef thermal index). Cells in the Encounter subregion (cells F7-F12) indicate that macroinvertebrate and fish species richness, large fish biomass and the percentage cover of canopy-forming algae has remained stable or is increasing at these sites (Brock *et al.* 2023). Marine species in the Encounter subregion include 52 bony fish, three shark and ray, 41 species of marine invertebrate, and seven species of crustacean (Brock et al. 2023).

Granite Island and outside Granite Island are two of eight sites used in the previous reef baseline study (Brook et al 2020), with the latter site used in the current trend analysis (Brock et al. 2023). Current reef biodiversity data for outside granite island (2007-2022) lists 16 species of fish, and 34 invertebrate species (Brock et al. (2023), Edgar and Stuart-Smith (2014), Edgar et al. (2020), Edgar and Barrett (2012). Long term baseline condition monitoring of these sites and those in the “encounter subregion” will be important to assess any impacts from future development and urban infill.

The SA Coast Protection Board's Beach Profile Survey Program initiative, undertaken by Coast Unit, DEW, was first established in 1977 along the Fleurieu Peninsula to monitor and evaluate changes in dune, beach and nearshore seabed levels, with a network of over 600 profiles maintained across the state. Profiles are usually established perpendicular to the shoreline and may extend 1 to 10 km offshore. Erosion hotspots are monitored annually to identify risks to natural assets and infrastructure. Profiles are also used to monitor a range of coastal ecosystems and landforms including saltmarsh and mangroves, seagrass, sand dunes and cliff profiles and provide a rare, long-term dataset which informs evidence-based decision making and coastal adaptation planning.

There is one long term beach profile off Tabernacle Road (620002) was established in this cell in 1977, to monitor dune, beach sand levels, nearshore reef and active zones of the beach system. In a recent study by Hesp (2025), analysis of profile 620002 indicates it built seawards from 1986 to 2018, although coast protection works post-1989 have taken place to assist in this process. The profile has since eroded landwards post-2018, with considerable volumetric loss in both beach and dunes. There is evidence of nearshore seabed deepening since 1989. Additional profile monitoring sites were added in 2009 located off Whalers Road (profile 620009), that are heavily influenced by the ‘hold the line’ in 1987 off Kareena Ave (620007) along Franklin Parade and in 2011 another profile was established due to a new erosional trend detected off Kent Reserve (profile 620016).

Profile 620016 has been put on the annual beach profile monitored program due to a period of rapid shoreline recession, also identified in the Victor Harbor Coastal Adaptation Study and by Council staff and community. Between 2011 and 2025 the dune in front of Kent Reserve receded by nearly 60 m. In 2025, an additional Beach Pole monitoring site was also added along profile 620016 as part of a partnership between the, City of Victor Harbor, Victor Harbor Coastcare group and the Coast Protection Board who collect regular readings of the beach poles to provide a more detailed record of how beach levels respond to seasonal changes and storm events. The beach poles as used as part of City of Victor Harbor’s Citizen Science Coastal Monitoring Program to inform coastal adaptation planning.

In 2012, Coast DEW developed a beach model to understand sand movement between the Inman River and the Causeway, spanning cells F11 and F12. This initiative responded to concerns about the 1997 Council-installed training groynes, which aimed to protect Esplanade Road and the caravan park from river flow impacts. The model was also installed as a baseline to monitor beach nourishment programs and to trial the use of geotextile groynes on the beach in response to increased erosional trends between the Inman and Causeway from the late 1990’s.

The Coastal Adaptation Study for City of Victor Harbor (Western 2021) and Victor Harbor Coastal Management Study undertaken by Australian Water Environments (2013) and more recently Hesp 2025, provide more detail on the general erosional trend of this section of coastline. With reduced beach volume and dune recession there are implications for reduced habitat for beach nesting birds, where beach nourishment may need to be considered to maintain existing habitat, dune restoration post storm events to promote recovery along relevant sections of coastline and promoting the importance of maintaining beach-cast wrack to protect the beach from further erosion.

There were also nine seagrass profiles established by Coast DEW in 2011 within this cell (620019 , 620020, 620021, 620022, 620023) off the Hindmarsh River Estuary and profiles (620011, 620013, 620014, 620015) off the Inman River Estuary as part of a study to monitor seagrass condition where baseline bathymetric data was initially collected for this collaborative study undertaken in 2011, in partnership with SARDI Aquatic Sciences and the former AMLR NRM Board (Tanner et al 2012, 2019). This is an important baseline data set from which to monitor future condition of seagrass conditions as well as changes in seabed bathymetry in response to changes in seagrass cover with historical links between seagrass loss and seabed erosion and deepening off other urban populations. This survey was undertaken on the basis that Encounter Bay is home to some of the most extensive areas of seagrass in the region with the potential to be heavily impacted by settlements with growing urban populations.

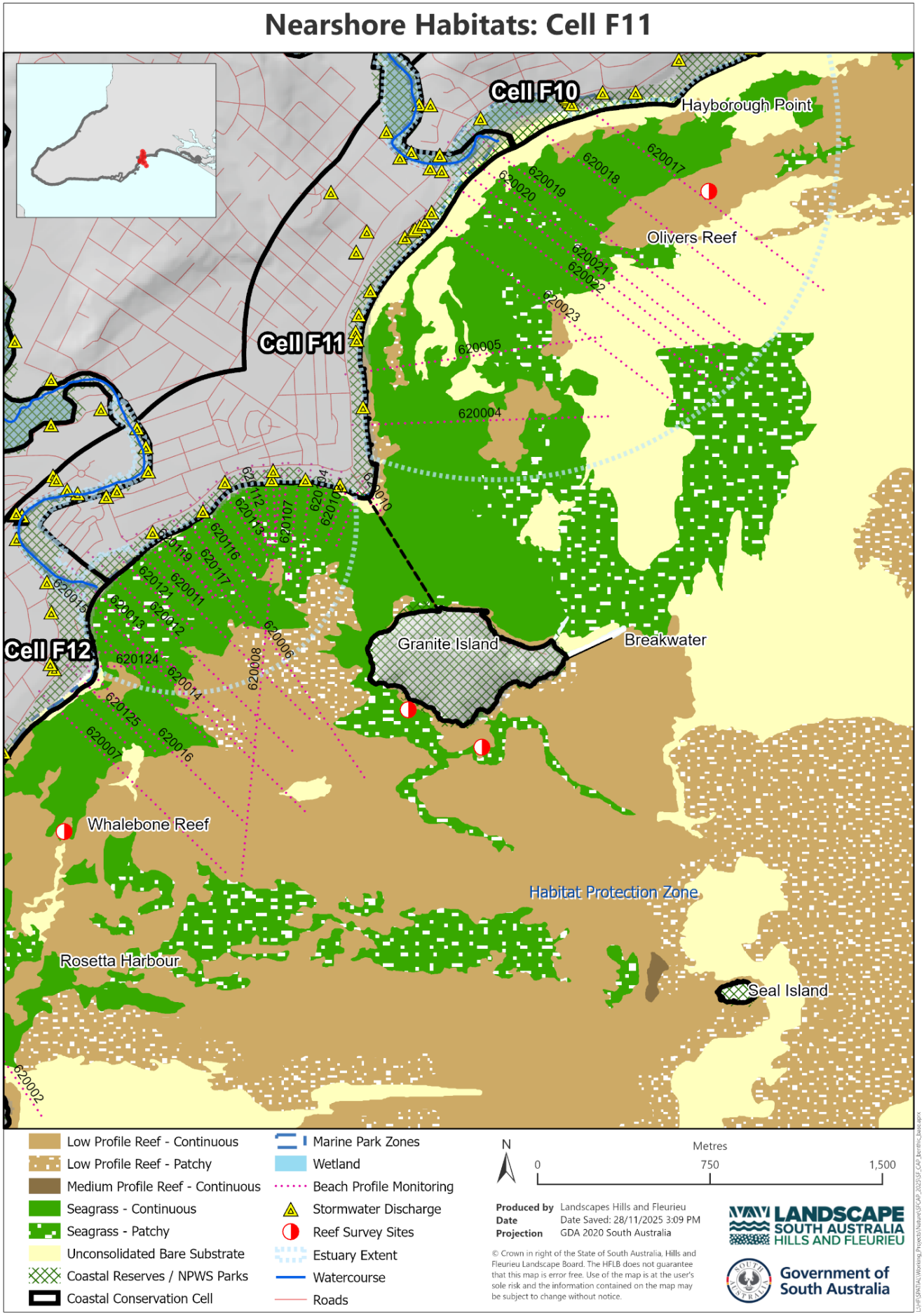


Figure 11.3 Nearshore habitats of Cell F11

Threats

Whole cell

Development pressure and changing demographics are prevalent in this area, (and neighbouring cells), leading to urban infill and expansion. There is increasing pressure on all coastal environments, including public land. Increasing visitation activities include whale watching, walkers, aquatic activities such as boating and jet skis, dogs on beaches (Victor Harbor is a key tourism destination).

The threat of land ownership and land use identifies some land parcels as potential threats to coastal areas due to factors like proximity to the coast or vulnerability to hazards. This highlights land parcels for potential intervention, such as zoning changes, restrictions or land purchase, to mitigate risks like erosion, inundation (storm surges, or sea-level rise), or the potential impact of current or future land use on coastal ecosystems, such as development or agriculture.

Substantial weed control works have been undertaken by land managers, landscape boards and coastal community groups in past decades throughout estuary and coastal dune habitats. However, ongoing control efforts are still required. There is a large proportion of exotic plant species and high weed distribution and abundance in this cell, which combine to give it a high weed threat. Large areas dominated by stands of introduced coastal weeds and garden escapes also threaten and reduce biodiversity values within the cell. Dune stability in many areas is compromised or, where good vegetation cover exists, it is often dominated by weed species, creating challenges for removal without further destabilising dunes or risking further erosion.

The following declared and red alert weeds were found within this cell: Bridal Creeper (*Asparagus asparagoides),* Gazania *(Gazania linearis),* African Boxthorn *(Lycium ferocissimum),* Western Coastal Wattle *(Acacia cyclops),* Myrtle-leaf Milkwort *(Polygala myrtifolia),* Boneseed *(Chrysanthemoides monilifera ssp. monilifera),* Lavatory Creeper *(Dipogon lignosus),* Coast Tea-tree *(Gaudium laevigatum),* Golden Wreath Wattle *(Acacia saligna),* Sea Spurge *(Euphorbia paralias),* False Caper *(Euphorbia terracina),* Olives *(Olea europaea ssp. europaea),* Blue-bell Creeper (*Billardiera heterophylla),* Salvation Jane (*Echium plantagineum),* African Love-grass (*Eragrostis curvula),* Lesser Broomrape (*Orobanche minor),* Sweet Pittosporum (*Pittosporum undulatum),* Blowfly Bush (*Rhamnus alaternus),* Three-corner Jack (*Rumex hypogaeus),* Athel Pine (*Tamarix aphylla),* Tamarisk *(Tamarix ramosissima),* Bulbil Watsonia (*Watsonia meriana var. bulbillifera),* Soursob *(Oxalis pes-caprae),* Perennial Veldt Grass *(Ehrharta calycina),* White Arctotis *(Arctotis stoechadifolia),* Sallow Wattle (*Acacia longifolia ssp. longifolia),* Century Plant (*Agave americana),* Marram Grass (*Ammophila arenaria),* Cape Weed (*Arctotheca calendula),* Kikuyu (*Cenchrus clandestinus),* Pampas Grass (*Cortaderia selloana),* Cotoneaster (*Cotoneaster simonsii),* Trailing African Daisy (*Dimorphotheca fruticosa),* Rodondo Creeper (*Drosanthemum candens),* Pyramid Tree (*Lagunaria patersonii),* Dwarf Sea-lavender (*Limonium binervosum),* Sea-lavender (*Limonium companyonis),* Tree Mallow (*Malva arborea),* Bracelet Honey-myrtle (*Melaleuca armillaris ssp. armillaris),* Pincushion (*Sixalix atropurpurea),* Sparaxis (*Sparaxis bulbifera),* Rat-tail Grass (*Sporobolus africanus),* Buffalo Grass (*Stenotaphrum secundatum),* Aster-weed (*Symphyotrichum subulatum),* Twiggy Mullein (*Verbascum virgatum),* Marguerite Daisy *(Argyranthemum frutescens ssp.),* New Zealand Mirror-bush *(Coprosma repens),* Horehound *(Marrubium vulgare),* Aleppo Pine *(Pinus halepensis),* Sea Wheat-grass (*Thinopyrum junceiforme*) and Apple of Sodom *(Solanum linnaeanum).*

Many weeds within nearby gardens are readily spread by people and birds, as evident by large areas of garden escapes within the cell. Examples such as Common Lantana (*Lantana camara*) along the Hindmarsh estuary, Gazanias (*Gazania sp.*), Coast Tea-tree (*Gaudium laevigatum*) and many succulent (*Aloe spp., Aeonium spp., Agave spp.*) species. The railway reserve contains many woody weeds, which are also a considerable problem throughout the dunes. Shared-land use management issues exist within in this cell and pose conflicting priorities of conservation outcomes versus fire hazard reduction, including clearance and spraying of vegetation within the railway corridor as part of ongoing track maintenance. There is a need for monitoring, recording, and control of new weed incursions.

Several butterfly and skipper species that have localised populations are limited in capacity for dispersal and/or colonisation of new sites. The lack of suitable habitats, weed invasion and interconnectivity between habitats prohibits movements and, therefore, creates localised isolation of populations. Urbanisation of coastal areas reduces the efficiency of species movements that could otherwise occur. Several species are now restricted to pockets of isolated habitats, resulting in some being vulnerable to population collapse (Stolarski 2024).

Sea Wheat-grass (*Thinopyrum junceiforme*) is well established in the Hindmarsh to Inman estuary foredunes and has altered dune geomorphology, creating a wall of taller dunes which impacts beach nesting bird and potential Hooded Plover habitat. Dunes with introduced grasses develop steeper and higher dune heights than those dominated with local native spinifex plants due to their growth habits. Hooded Plovers need a relatively open beach/foredune area to be able to breed, roost and feed. Dunes with high and densely planted areas are not favourable to Hooded Plovers and put them at greater risk to predators, such as silver gulls (*Chroicocephalus novaehollandiae novaehollandiae*), ravens, foxes and other species. Foxes, sea level rise, storm surge, and dogs off-leash are also impacting beach-nesting birds in this cell.

Untreated (foreground) vs treated (rear) dune Sea Wheat-grass (Thinopyrum junceiforme) with regenerating Spinifex (C Taylor)

Potential pest animal threats to coastal fauna and flora from rabbits (*Oryctolagus cuniculus*), foxes (*Vulpes vulpes*), and cats (*Felis catus*), House Mouse (*Mus musculus*) and Black Rat (*Rattus rattus*). Coordinated collaboration between landowners and managers is required to manage pest animals (refer to regional pest management strategies).

A sighting of the declared pest Common Myna (*Acridotheres tristis*) in Encounter Bay (on the coastal slopes adjacent to cell F12) was reported in 2024, and this is the only known location of the bird in South Australia. This aggressive invasive species, also known as the Indian Myna, is established throughout eastern Australia and poses a threat by evicting native birds from their nests, destroying eggs, and killing chicks. They also damage crops and orchards and are a nuisance for residents. A pest alert remains in place for any sightings to be reported via MynaScan to aid eradication efforts.

Diseases, such as Avian cholera, are a threat to waterbirds in the cell (sea bird, waterfowl, penguin). Zoonotic threats to marine wildlife from humans (and vice versa). Link to national wildlife health and biosecurity plans.

Beach and dune erosion is a concern for this cell, occuring between the Causeway and the Inman River. This poses a threat to the adjacent reserve, with recession focussed on the middle of this beach and damage to a stormwater pipe near Stuart Street. Beach erosion at the Warland Reserve is also an issue.

There are also challenges with stormwater management and flood risk, particularly in the township of Victor Harbor. The Victor Harbor Urban Stormwater Management Plan (2024) identifies that the habitats most likely to be impacted by stormwater are those in the immediate vicinity of stormwater discharges. Stormwater outlets discharge along the shoreline throughout the Victor Harbor SMP region. Although outlets are above the high tide mark and discharges are onshore – i.e. not directly into the marine environment, the proximity of many of the outfalls to the shore means that at least some stormwater may reach near-shore habitats with little dilution. (see Fig 11.3).

Stormwater outlets releasing directly onto the beach (R Shirlaw)

Other key stormwater related issues for this cell are clearly defined in the Victor Harbor Stormwater Management Plan (City of Victor Harbor 2024) as follows:

- A range of drainage system performance deficiencies, including trapped ponding, underground network surcharge and property inundation;
- Limited available public open space with which to facilitate catchment-scale detention, water quality and stormwater harvesting and reuse initiatives;
- A need for additional water quality treatment measures throughout the Study Area, with many catchments draining to the rivers and coast untreated;
- Future development, largely consisting of greenfield development, will exacerbate flood risk and decrease the quality of water leaving the Study Area; and
- The potential for climate change, in the form of higher intensity rainfall and sea level rise, to increase flood risk.

Potential risks to nearshore environments from stormwater are increased suspended sediments, which have impacts through light reduction (turbidity) and sedimentation, nutrients, other contaminants such as metals, pesticides, hydrocarbons, and emerging organic contaminants, and reduced salinity due to freshwater inputs (Gaylard 2009).

Bryars (2013) describes the potential impacts of catchment and stormwater flows as lower for reef compared to seagrass habitats, as there is a relatively large amount of reef occurring within the cell and because much of this reef occurs offshore away from where direct contact. However, some sections of reef do occur in the inshore area where direct contact with catchment and stormwater flows is more likely (Bryars 2013).

Bryars (2013) describes the higher risk for seagrass habitats from catchment and stormwater flows is based on a relatively small amount of seagrass occurring within the cell, and because all of the seagrass is inshore where direct contact with catchment and stormwater flows are more likely. There has also been some evidence of historical seagrass loss adjacent to the Inman River, with some areas of high epiphyte cover. However, most seagrasses were generally in good condition (Tanner et al. 2012).

Outflow from the River Murray, especially during flood events, has also been significant in recent times, with associated turbid waters extending westward from the Murray Mouth across Encounter Bay to The Bluff and possibly further. The impacts of these episodic flows on nearshore habitats are unknown.

Hindmarsh River Estuary

The Hindmarsh and adjacent Inman River (see F12) estuaries face several threats, including poor water quality and lack of freshwater flows (SKM 2010). Poor water quality (sedimentation, nutrient loads, and turbidity) from estuary and stormwater flows pose threats to local benthic habitats, such as seagrass meadows. Connectivity of estuary areas to both coast and marine waters through water flow is critical to maintain the health of the estuary. Typically, this connectedness is achieved through adequate freshwater inflows and tidal surges from the marine environment. Changes in either of these can dramatically influence local conditions for flora and fauna. Threats to estuary from artificial opening, dredging and timing are impacting a range of flora and fauna species and increased risk of erosion may impact conservation of Swamp Paper-bark habitats in the estuary.

Water quality assessments of multiple sites within the lower Hindmarsh River were also provided as part of fish monitoring data (Schmarr and Thwaites 2020) but were not at the temporal scale (over 3 years) that was assessed as part of the COOE (2016) analysis.

Water quality monitoring by COOE (2016) determined that water temperature for the estuary follows seasonal ambient temperature patterns, highest in summer. Sites closer to the estuary mouth tend to have higher water temperature, decreasing with distance upstream. Temperature stratification was observed, especially near the estuary mouth. Salinity in the Hindmarsh estuary ranges from 0.24 practical salinity units (PSU) to 32.75 PSU. A combination of river flow following rainfall and the state of the estuary opening influence salinity. Salinity decreases with distance from the mouth of the estuary. Stratification of salinity occurs near the mouth of the river. pH is neutral to mildly alkaline within the Hindmarsh estuary. pH decreases (becomes more acid) with distance from the mouth of the river but does not fall below neutral (COOE 2016).

Upper catchment areas of the Hindmarsh River estuary (S Rawson)

The Hindmarsh estuary tends to be anoxic during the warmer months. Oxygen depletion is thought to be caused by a combination of high nutrient loads, and temperature driving increased biological productivity and associated increased oxygen demand. Ammonium concentrations were generally low in Hindmarsh estuary, but higher during the autumn months. Total nitrogen (TN) concentrations were higher in winter, with median TN concentrations higher than the ANZECC default trigger values. Total phosphorus (TP) levels were high, and the monthly medians were often higher than the ANZECC default trigger values; 59% of all samples were higher than the trigger value for TP. Nutrient analyses indicate that the Hindmarsh is a nutrient rich environment and potentially prone to algal blooms. Chlorophyll-a levels were generally below the ANZECC estuarine default trigger values for south central Australian estuarine waters. Concentrations were generally higher during the warmer months. Turbidity is high in the Hindmarsh estuary, with seasonal median values generally higher than the ANZECC default trigger value. Summer months were more likely to be turbid than the winter months.

Coliform bacteria populations were high throughout the year, at all monitoring sites. Median total coliform counts were consistently higher than the ANZECC default guideline for both primary and secondary contact. Total coliform concentrations were higher in summer. E. coli concentrations were high throughout the Hindmarsh estuary in all seasons, with winter recording the highest median for E. coli counts. A spike in July 2016 was partially responsible for the elevated winter medians. High total coliform bacteria, combined with high faecal coliform in winter, suggest that the Hindmarsh estuary needs significant management attention to ensure safe recreational use of the estuary.

The upper reaches of the Hindmarsh estuary had numerous pest weeds that threaten the diversity of the native plants and ecological communities within the estuary. Of concern are Boneseed (*Chrysanthemoides monilifera ssp. monilifera)* and Cape Ivy *(Delairea odorata).* Cape Ivy was abundant amongst understory, and in some areas encroaching over Swamp Paper-bark (*Melaleuca halmaturorum*) habitats. Other species of concern include African Boxthorn (*Lycium ferocissimum*) Olives (*Olea europaea ssp. europaea)*, Bulbil Watsonia (*Watsonia meriana var. bulbillifera)*, Gorse (*Ulex europaeus*), Blackberry (*Rubus fruticosis*), Blue-bell Creeper (*Billardiera heterophylla*) and Bridal Creeper (*Asparagus asparagoides*) (SKM 2010, COOE 2012).

Artificial opening or closing of the estuary is undertaken by the council (associated with an EPA permit) to manage river build-up or loss by mechanical opening or closing of the estuary. There are upstream implications and complexities associated with opening and closure of estuaries, particularly related to permanent water bodies. The opening of the Hindmarsh River estuary mouth can dramatically affect the functioning of organisms within the estuary and near shore. Changes to mouth opening will impact water quality and fish within the estuary, and the movements of fish between the estuary and the coastal environment (SKM 2010, Chilton et al 2021).

Granite Island

The diversity and structure of the native vegetation communities on Granite Island have been modified considerably over the last 150 years (Telfer and Milne 2016). This has resulted in a considerable inheritance of imported exotic plants that impede seabird habitat/nesting, compromises biodiversity and revegetation.

Revegetation on the south side of Granite Island (C Jackson)

The Little Penguin (*Eudyptula minor novaehollandiae*) population is threatened by Black Rats (*Rattus rattus*) that predate on penguin chicks/eggs, while foxes, pigeons, dogs and cats may predate on penguins and other native fauna (DEWNR 2016). At least one fox crossed the causeway to the island in 2020, significantly reducing the already limited penguin population. Efforts were made to reduce the risk of foxes accessing the island with a 'fox proof' gate installed as part of the causeway upgrade in 2021. High people visitation due to easy access, attraction of Little Penguin (*Eudyptula minor novaehollandiae*) colony, boardwalks and walking trails, scenery also impact fauna and flora through disturbance, particularly during peak visitation.

Little Penguin (Eudyptula minor novaehollandiae) (S Iwao)

Granite Island's Little Penguin (*Eudyptula minor novaehollandiae*) population has fallen from an estimated 1548 individuals in 2001 to only 32 individuals in 2014 (Bool et al. 2007, Colombelli-Négrel 2015). Subsequent annual population counts indicate the population is being maintained (including fledglings entering the population), with recent population estimates of approximately 20 to 30 adults, (Colombelli-Négrel,et al, 2022). Dann (2016) identified a potential role of the Murray River outflows in the survival and breeding productivity of penguins in Encounter Bay. This possibility is supported by the reporting of Granite and West Island's penguins experiencing their major declines in numbers in the mid-2000s (Colombelli-Négrel 2015) during the drought (2002-2010). Initial research by Colombelli-Négrel,et. al, (2022) noted that Granite Island's Little Penguin (*Eudyptula minor novaehollandiae*) population still has not recovered in 2020 (Colombelli-Négrel, 2020), despite larger outflows in 2012-2013 and at the end of 2016, suggesting that the population may have reached some critical reduction in the number of breeding birds during the drought period.

Sooty Oystercatcher (Haematopus fuliginosus fuliginosus) feeding 10-day old chick on Granite Island (October 2025) (M David)

Since the 1980's two breeding seabird species have notably declined in the area. The Fairy Tern (*Sternula nereis nereis)* has undergone a widespread decline across the State and is now listed as Endangered at a State level (Furbank et al 2024). The Little Penguin (*Eudyptula minor novaehollandiae*) population declined rapidly after the 1990's and this decline has been the impetus for research, monitoring and development of management actions to gain baseline information on populations across the region, increase awareness of conservation issues and to investigate causes of declines (Telfer and Milne 2016).

Opportunities

Whole cell

Manage visitor numbers and impacts to ensure coastal areas can support growing demand, while maintaining and improving the quality of experiences without diminishing the values of the cell. Investigate improved infrastructure and fencing to ensure for environmentally and culturally sensitive path formalisation and low-impact walking trails, and further opportunities to reduce impacts on the coastal environment. Education, restrictions and compliance regarding off-leash dogs. Work with First Nation communities, tourism operators and agencies to support visitor education about coastal ecological and cultural values and appropriate behaviors.

Community education opportunities regarding:

- Migratory and residential shorebirds and sea birds (dogs on leads, nesting sites, citizen science projects, managing visitor disturbance) and interpretive signage at high use areas.
- Fragile nature of coastal areas that are sensitive to foot traffic, soil compaction and erosion.
- Education and targeted communications regarding marine parks, nearshore habitats.
- Increased cultural awareness training and knowledge of culturally appropriate processes to respect known cultural heritage sites for land managers and coastal community groups
- Citizen science monitoring to contribute to intertidal reef monitoring, Seagrass restoration, dolphin watch, beach pole monitoring, Fleurieu seabird monitoring program and beach nesting birds.
- Coastal gardens and resident/business owner education
- Value of place and coastal values, responsible beach use and reducing human impact on dunes.
- There is opportunity for signage renewal across coastal areas to educate the community about coastal conservation, cultural significance and appropriate behaviours.
- Population of native Swamp Rat (*Rattus lutreolus*) at Estuary of Hindmarsh River regularly sighted by community and confused with introduced Black rat (*Rattus rattus*) with unwarranted calls for removal.

Opportunity to work with nature-based tourism (commercial and recreational) operators and community volunteers to increase education and stewardship of local coastal environments and protection of species.

The horse drawn tram and Screwpile jetty are popular tourist attractions for visitors to Victor Harbor (R Shirlaw)

Continue to support volunteer effort and control of weed species working from remnant patches and high conservation rated flora populations. Ongoing incursions from surrounding private properties and untreated areas continue to threaten the linear dunes, as well as woody weeds within the railway corridor. Further coordinated weed control across land managers and community groups with follow up revegetation is required. Leverage previous investment in weed control to address priority weed species through a collaborative approach.

Targeted interventions for threatened/rare plant species and communities should be implemented to support existing populations as part of an integrated weed control and coastal shrubland revegetation approach.

The area between the caravan park, the Inman River and foreshore is a significant and highly visible piece of coastal open space and should be given active planning and priority for further weed control, re-planting as coastal dunes and a small wetland (Caton et al 2007).

There is opportunity for SteamRanger to develop an Environmental Management Plan in collaboration with Councils. The plan may address weed control and pest animals, support train sight lines, manage erosion, and support community education along the railway corridor.

Maintain and expand coastal restoration actions, including revegetation with local native plants and priority weed control. Increase suitable habitat for coastal butterfly populations, including planting of host plants (including *Gahnia filum* and *Poa spp.*) in coastal areas to increase habitat suitability for local introductions.

Continue to support collaborative efforts to protect and conserve Hooded Plover breeding habitats within this cell. Implement actions to support Hooded Plover conservation, including exclusions, temporary fencing and signage, and education for dog owners. Support the introduction and implementation of Council by-laws to protect biodiversity and natural assets, such as dogs on lead in estuaries and high value areas. There are opportunities to support Hooded Plover habitat by replacing introduced Sea Wheat-grass (*Thinopyrum junceiforme*) with native Spinifex vegetation associations.

Hooded Plovers (Thinornis cucullatus cucullatus) are regularly observed near estuary habitats that provide valuable food sources and alternate feeding areas when open beaches are busy throughout the summer. Estuaries are also known as flocking sites where multiple birds will gather together over winter months. (M Stokes)

This cell is important for coastal raptors and ongoing monitoring and management is critical to minimise visitor disturbance and to support habitat condition for raptor populations. Investigate opportunities to support and implement the recovery plan for Eastern Osprey and White-bellied Sea Eagles (2022). Monitor, maintain and improve the quality of vegetation for the provision of wildlife habitat for priority species.

As part of the *Coastal Dune and Clifftop Vegetation Surveys* (1995–1997) (Opperman 1999), long-term monitoring sites were established across South Australia and the Southern Fleurieu region to assess the structure and composition of coastal dune and clifftop plant communities, and their relationships to regional and environmental factors. Given that nearly 30 years have passed since these surveys were undertaken, there is strong potential for shifts in geographical range and changes in species composition due to the long-term impacts of climate change. The *Survey of Remnant Vegetation of the Southern Fleurieu Peninsula* involved biological surveys conducted between 1987 and 1991 to establish baseline data on remnant vegetation and swamps in the region south of Adelaide, South Australia.

During the development of this plan, and through the assessment of flora and fauna (both native and introduced) species lists available via the Biological Database of South Australia (BDBSA), significant gaps were identified between recorded species and known species distributions within cells. To address these data deficiencies and improve the accuracy of long-term ecological records, both above foundational vegetation survey projects should be repeated and incorporated into an ongoing monitoring program. Fauna assessments across cells to establish population baselines, update existing records and species distribution, particularly of underrepresented groups (reptiles and invertebrates) should be undertaken.

There is opportunity to develop guidelines for projects within Council areas to support improved stormwater management and reduce land-based impacts on coastal and nearshore marine environments. Implementation of the City of Victor Harbor's Urban Stormwater Management Plan (2024) provides opportunity for managing stormwater and future stormwater planning with infrastructure upgrades, to improve stormwater quality prior to entering nearshore marine environments. Consider locations within existing open space to install/retrofit sedimentation or detention areas, increasing water quality and improve biodiversity values with establishment of local coastal species. There are opportunities for reusing water from the Wastewater Treatment Plant, subject to access and collaboration between land and asset managers. Allowing for sufficient environmental flows is important for estuary health and management.

Future coastal and marine investigations should consider the City of Victor Harbor Urban Stormwater Management Plan (2024) and ensure the monitoring of marine ecosystem markers (refer to plan) to determine nearshore and marine impacts directly or indirectly related to stormwater management. Opportunities for forward planning with

climate change to identify high priority conservation areas and management options, such as planned retreat, soft or hard infrastructure options.

Collaboration between agencies, researchers, and community to monitor seagrass condition and inform active management. Opportunities for increased coordinated between community groups and volunteers to support landscape scale conservation approach to coastal management.

Strengthen connectivity between coastal ecosystems and nature corridors (Hindmarsh and Inman River). Increase flora and fauna resilience to progressive climate change and improve biodiversity connectivity across the landscape by planting and maintaining habitats for woodland and shrubland bird species such as Black-chinned Honeyeater (*Melithreptus gularis gularis*) and Eastern Shriketit (*Falcunculus frontatus frontatus*) (located upstream).

Black-chinned Honeyeater (Melithreptus gularis gularis) (M Stokes)

There are opportunities for collaboration between partners, such as National Parks, Marine Parks, First Nations, landscape boards, volunteer groups, community and nature-based tourism operators for monitoring of sea birds, coastal raptors, marine mammals and other wildlife.

Supporting community volunteer, First Nations and land manager efforts to undertake priority restoration and conservation work in this cell. Strengthening partnerships with adjoining landowners, volunteer organisations, researchers, and the wider community to foster collaboration and long-term management benefits for biodiversity protection and restoration.

Collaborate with the SA Climate Ready Coasts program to enhance, resource, and implement coastal management initiatives and accelerate coastal hazard adaptation planning across South Australia. This program supports the development and delivery of Coastal Hazard Adaptation Plans (CHAPs), led by the Local Government Association (LGA) of South Australia in partnership with the SA Coast Protection Board, the Department for Environment and Water, the Adelaide Coastal Councils Network, and the SA Coastal Councils Alliance.

Hindmarsh River estuary

Continued implementation of the Hindmarsh River Estuary Action Plan (SKM 2010) is required, and development of a strategic management plan across the multiple agencies and land managers encompassing the economic, social and environmental sustainability of this estuary would greatly aid a coordinated management approach.

Swamp Paper-bark (Melaleuca halmaturorum) habitats are located throughout the lower and middle estuary areas (C Jackson)

Improvement to the estuarine flora and fauna habitats and connectivity with marine environments can be achieved through the development and employment of an Estuary Entrance Management Support System (EEMSS). This would include a framework for decision makers, considering both the ecological and infrastructure/amenity concerns. Improved management of estuaries within the region (and across the state) is required for a more strategic planning and management approach to deliver positive and coordinated outcomes for estuary habitats. Improved monitoring of ecological communities, connectivity with marine systems and water quality conditions within the estuary will allow more effective adaptive management; being aware of conditions and responding as required.

SKM (2010) recommends a hydrological study of the Hindmarsh catchment, including groundwater inputs be undertaken to:

- Determine the degree of groundwater versus stream water entering the estuary, particularly during different seasons.
- Determine the effects of local groundwater extraction (e.g. commercial recreational users) on estuarine flows and salinity.
- Determining groundwater inputs into the estuary would allow for better management of surface and groundwater and a better understanding of how dependent the estuaries are on groundwater as a base source of water.

Flow restoration recommendations (SKM 2010) to restore and enhance watershed flows and therefore increase estuarine flushing include:

- Consider estuarine environmental flows in the Water Allocation Plan (WAP).
- Determine the proportion of dams in the upper catchment that should have low flow bypasses by 2029.
- Investigate surface water extractions throughout the catchment, including for agriculture and recreation.

Protection from weed incursion, development, disturbance, increased restoration and community awareness of local value of vegetation communities related to the EPBC Act Threatened ecological community, *subtropical and temperate coastal saltmarsh*, at Hindmarsh River estuary coastal lagoon and Inman River estuary. Further assessment of these areas through formal classification and listing on the national register of Matters of National Environmental Significance (MNES) needs to be undertaken.

Granite and Seal Islands

Ongoing weed control and revegetation efforts on Granite Island should supplement existing habitat, using appropriate species for the vegetation community and planting at appropriate (i.e. natural) densities. Telfer and Milne (2016) suggest maintenance of open areas where birds such as terns can potentially nest must also be carefully considered when planning revegetation. This would also help maintain favourable habitat for other species, such as the Sleepy Lizard (*Tiliqua rugosa).*

Dann (2016) acknowledges Granite Island penguins feature under several high-risk pressures and several medium risk pressures and warrant site-specific coordinated attention through the development of a management plan for Little Penguins (*Eudyptula minor novaehollandiae*). Monitoring of threats, population changes and pressures (including low population numbers and prey availability), as well as increased community awareness (signage, managed guided tours) should be supported.

Opportunity for cross-regional collaboration to review and continue to implement Gulf St Vincent Assessment Plan for Little penguins. Review the need for state assessment (from 2016) of conservation status for Little Penguin (*Eudyptula minor novaehollandiae*) considering recent declines reported in several regions.

Long-nosed Fur Seals (Arctocephalus forsteri) (above) and the endangered Australian Sea Lion (Neophoca cinerea) use large rocky outcrops across both islands as resting haul out areas (K Peters)

Implement Fleurieu Island Biodiversity Action Plan and support citizen science initiatives (dolphin watch, beach pole monitoring, quail populations, Fleurieu seabird monitoring program) to increase data collection and improve management and community environmental awareness.

Climate change threats to coastal biodiversity (see BMT 2025)

Potential climate change threats to coastal biodiversity

Cell F11 includes two estuaries, coastal dunes and beach ecosystems. The beach and dunes are important areas for nesting birds. The dunes also support native vegetation of importance for flora and fauna. The intertidal areas including the estuary support infauna on which birds feed, and a reef ecosystem.

Biodiversity assets potentially vulnerable to climate change in this cell include:

- Coastal dunes and vegetation
- Native vegetation
- Beach nesting birds
- Beach ecosystem
- Reef ecosystem
- Estuary ecosystem

These ecosystems may be particularly vulnerable to the direct impacts of climate change, particularly sea level rise, coastal erosion, increased drought, higher temperatures and more intense storms as described above.

Analysis of climate change projections suggest that the low-lying parts of the coastal plain will be subject to both flooding and erosion in the medium term. Rising sea levels will lead to increased foredune damage and recession. Where recession is not possible, beaches in front of hard protection will narrow and may be lost. In the interim, beach response to seasonal changes may become more unpredictable. The shoreline is controlled by reef protection. However, this may suffer radical re-alignment following sea level rise. Changes in wave climate, such that an increasing proportion of energetic long period swell occurs, would have a marked impact on the narrow medium energy beaches and low dunes of this cell, due to refraction effects on long period waves (Caton et al 2007).

Western et al., 2021 summarises the main threat from sea level rise having an increasing impact to backshores, as the dune system will recede, resulting in permanent recession of the sand dunes. Unless room is made landward of the sand dunes, they will be unable to retreat and will be lost to the foreshore. As the protected backshore is unable to recede, sand levels will continue to lower on the beach, which may in time be lost for community use. Community concern may cause social disruption, and ecosystem disruption is likely to occur in some freshwater ecologies in reserves/parks and within the two estuaries. Sea water flooding through to low-lying land that is currently freshwater ecology would be irreversibly disrupted with incursion of saltwater. Habitats of beach-nesting birds are likely to be disturbed or lost. The impact is likely to be the greatest in locations where shorelines are unable to retreat naturally due to human intervention (Western et al., 2021).

Groundwater flow can influence the moisture levels in the coastal environment, affecting the vegetation and organisms that inhabit these zones. Lower groundwater levels could increase vulnerability to drought and erosion. As sea levels rise, groundwater salt intrusion is likely to occur.

Cell Action Table

Component	Issue	Proposed Action	Priority	Key Players
Whole cell	Threats and opportunities to improve protection of cultural heritage within cell.	Cultural consultation and collaboration to appropriately manage cultural heritage within this area. Prevent damage, disturbance, or interference to cultural heritage by adhering to the Aboriginal Heritage Act 1988.	High (cons/ threat)	NAC, Council, LHF, Coastal Community groups, Aboriginal Affairs and Reconciliation - Department of Premier and Cabinet
	Increased visitation and recreational pressure on dunes and viewing points due to increased local population and tourist promotion (particularly whale watching).	Assess increased visitation capacity at known sites, repair or upgrade fencing to restrict unauthorised access and review car parking capacity. Manage visitor numbers within sustainable limits in ecologically and culturally sensitive and significant areas - consult with First Nations groups.	High (cons/ threat)	Council, NAC, land managers
		Investigate opportunities for community education and engagement regarding unique and valuable coastal landscape and fragile nature of coastal areas. Dedicated cultural education and training for land managers, agency staff and land stewards	High (Cons/ Soc)	Council, LHF, NPWSSA, NAC, coastal community groups, Community groups
		Opportunity to work with nature-based tourism operators to increase education and stewardship of local coastal environments, ensuring that tourism is conducted in partnership with First Nations with cultural obligation.	Medium (Cons)	Council, land managers, NAC, NPWSSA, coastal community groups
		Interpretive signage relating to the ecological value and significance of nearshore zone, the estuary and dune habitat.	Medium (cons)	Council, land managers, NPWSSA, coastal community groups
		Development of consistent signage and messaging for coastal values and compliance for conservation areas (public managed lands, coastal reserves) across the Fleurieu Peninsula coast. Co-design signage with First Nations/ knowledge holders.	Medium (Soc/ Cons)	Council, land managers, NAC, NPWSSA, coastal community groups
		Collaborate and manage access with beach-based users and businesses (e.g. SLSC, Surfing SA, surf/paddle boarders, swim/surf schools), to ensure protection of coastal areas and groups do not impact conservation and cultural value areas and species.	Medium (threat)	Council, DEW, land managers, NAC, coastal community groups, beach users and businesses
		Monitor aquatic activities (boating, paddleboard and jet skis) for increased pressures on local coastal habitats and fauna species interactions.	High (threat)	Council and land managers
		Events on beaches and coastal habitats must not impact on natural values, especially listed threatened species and communities, in the area or vicinity of events. Event organisers should be informed, where appropriate via permits, on their obligations to not inflict environmental harm and to undertake actions in accordance with relevant legislation and by-laws.	Medium (threat)	Council, DEW, NPWSSA, BirdLife Australia, event managers
	New weed incursions in reserves adjacent to residential areas	Target residences with educational materials, with regard to weeds particularly garden escapes.	High (Threat/ Soc / Econ)	Council, coastal community groups, LHF, NPWSSA
		Target large stands and encroachments of succulents that encourage residents to plant similar species that spread into coastal reserves reducing biodiversity values.	High (threat)	Council, coastal community groups
		Monitor for new weed incursions, record incursions via public database (e.g. BDBSA) and control new incursions as a priority.	High (Cons/ threat)	Council, land managers, coastal community groups
		Continuation of landscaping of verges and traffic control areas with local coastal native plants and community education opportunities such as Coastal Gardens workshops, plant giveaways and education with coastal gardens displays.	Medium Cons/ Threat)	Council, land managers, coastal community groups
		Monitor changes to dunes through BushRAT or similar monitoring to measure condition assessment and change.	High (cons/ threat)	Council, LHF, Community Groups.
	Diseases, such as, Avian cholera are a threat to waterbirds in the cell (sea bird, waterfowl, penguin). Zoonotic threats to marine wildlife from humans (and vice versa).	Implement actions in National Wildlife Health and biosecurity plans to minimise risk of infection and spread.	High (threat)	DEW, NPWSSA, LHF, Council

Component	Issue	Proposed Action	Priority	Key Players
Whole cell	Threat to coastal fauna and flora from pest animals (rabbits, foxes and cats).	Coordinated collaboration between landowners and managers is required to manage pest animals.	High (threat)	Councils, land owners, NAC business/ contractors/rangers, LHF
		Report sightings of feral animals (deer, fox, rabbit, cat and declared species) through the feral scan pest animal recording and management tool	High (threat)	Land managers, community, coastal community groups
	Protection of significant flora and fauna.	Protection of remnant vegetation through priority weed control. Propagate local plants for reintroduction to other sites to maintain genetic diversity and source populations.	High (Cons/ threat)	Council, land managers, LHF, NAC business/ contractors/rangers, coastal community groups, local coastal plant nurseries
		Targeted interventions for threatened/rare plant species and communities.	High (cons)	DEW, NPWSSA, LHF, Council, coastal community groups
		Explore opportunities for greater local awareness of conservation value of area.	Medium (cons)	Council, NPWSSA, LHF, coastal community groups
	Resilience to climate change effects across landscape.	Strengthen connectivity between coastal ecosystems and nature corridors (Hindmarsh and Inman River).	Medium (Cons)	Council, land managers, DEW, LHF, NAC business/ contractors/rangers, coastal community groups
	Butterfly habitats and host plant protection.	Identify locations of potential butterfly habitats and host plants with the cell.	High (cons)	Council, DEW, LHF, coastal community groups
		Extension of existing habitats and reintroduction of locally extinct butterfly species.	Medium (cons)	Council, DEW, LHF, NAC business/ contractors/rangers, coastal community groups
		Undertake weed management and enhance habitat for Chequered Copper butterfly (*Anisynta cynone cynone) (Poa spp) and* Yellowish Sedge Skipper *(Hesperilla flavescens) (Gahnia filum).*	Medium (cons)	Council, coastal community groups
	Valuable habitat for coastal raptors (White-bellied Sea Eagle and Eastern Osprey).	Ongoing monitoring and management of high values nesting and foraging areas.	High (cons)	NPWSSA, DEW, LHF, NAC business/ contractors/rangers, Council
		Implement the recovery plan for Eastern Osprey and White-bellied Sea Eagles (2022).	High (cons)	DEW, NPWSSA, LHF
	Multiple community groups and volunteers across coastal areas.	Facilitate opportunities for increased coordination and sharing of skills and information between community groups and volunteers to support landscape scale approach to coastal conservation and management.	High (Cons)	Council, land managers, LHF, NAC, coastal community groups
	High value habitat for marine mammals, important nursery areas for Southern Right and Humpback whales.	Continue monitoring and management of nursery areas and compliance of impact causing activities.	High (cons/ threat)	DEW, NPWSSA, SA Whale Centre, NAC business/ contractors/rangers, Encounter Whales
	Multiple Citizen Science programs and opportunities.	Support citizen science initiatives (dolphin watch, beach pole monitoring, quail populations, Fleurieu seabird monitoring program) to increase data collection and improve management and community environmental awareness.	Medium (Cons)	Council, land managers, DEW, LHF, NAC, coastal community groups
	Aged baseline data and significant gaps in recorded flora and fauna species across the Southern Fleurieu region.	Repeat and integrate historical vegetation surveys into a long-term monitoring program to update records and address data deficiencies.	Medium (cons/ threat)	DEW, LHF, councils, coastal community groups
		Undertake fauna assessments across cells to establish baselines, update records and species distribution, particularly of underrepresented groups (reptiles and invertebrates).	Medium (cons/ threat)	DEW, LHF, councils, coastal community groups
		Identify potential funding sources to repeat these long-term flora monitoring sites and fauna assessments.	High (cons/ threat)	DEW, LHF, councils.

Component	Issue	Proposed Action	Priority	Key Players
Whole cell	Stormwater impacts from inland development are likely to impact marine intertidal habitats and may accelerate seabed deepening and coastal erosion. Turbidity from suspended sediments and nutrients are a significant threat to reef and seagrass habitats.	Implementation of the City of Victor Harbor's Urban Stormwater Management Plan (2024). Consider locations within existing open space to install/retrofit sedimentation or detention areas increasing water quality and improve biodiversity values.	High (Cons/ threat)	Council, LHF
		Investigate opportunities for reusing water from the Wastewater Treatment Plant, allowing for sufficient environmental flows for estuary health and management.	Medium (cons)	Council, SA Water, LHF, EPA
		Monitor and manage stormwater to minimise impacts in the coast and marine environment. Implement Water Sensitive Urban Design (WSUD).	High (Threat)	Council, LHF, CPB, Water Sensitive SA
		Develop guidelines for projects within Council areas to support improved stormwater management and reduce land-based impacts on coastal and nearshore marine environments.	Medium (cons/ threat)	Council, LHF, DEW
	Physical changes on the coast and natural assets from sea level rise (such as coastal squeeze on tidal habitats, erosion, vegetation loss, marine turbidity and light reduction)	Continue monitoring and implementation of Coastal Adaptation Study recommendations, including key locations and priorities for funding. Support partnerships for ongoing investigation and monitoring in the coastal zone, working with the Coast Protection Board to identify adaptation options for the future.	High (Cons. Threat)	CPB, Council, community, university and research agencies, Climate Ready Coasts Program
Beaches and Dunes	Weed control and threats to coastal biodiversity.	Support council and Coastal Community group campaigns to eradicate red alert weeds.	High (threat)	coastal community groups, Council, NAC business/ contractors/rangers, LHF.
		Leverage funding opportunities based on previous investment and in-kind contributions from coastal community groups.	High (Soc / Econ)	coastal community groups Council, LHF
	Damage, de-stabilisation and erosion by foot traffic through informal access and ageing infrastructure (fencing).	Improvement of signage at path entrances and by railway reserve Review access control. Strategic use of sand drift fencing.	High (Soc / Econ)	Council, SteamRanger and coastal community groups
	Current erosion, accumulation and changes in beach profiles.	Continue beach pole observations and beach profile monitoring located on the CPB profile line for more frequent data on how the beach responds to seasonal changes and storm surge events.	High (Hazard)	coastal community groups, CPB, Council.
	Current erosion, accumulation and changes in beach profiles.	Promote the conservation of beach wrack to safeguard the ecological integrity of the foreshore and enhance erosion control.	High (con/ threat)	Council
		Implement actions and recommendation from Council Coastal Adaptation Study and Strategy. Obtain ongoing support for coastal research investigations and monitoring.	High (threat/ cons)	Council, CPB, research institutions
	Strong potential for future erosion, due to sea level rise and possible changes in wave climate.	Maintain and analyse profile records. Continue and expand photopoint (Coast snap) monitoring of beaches. Analyse historical beach profile photopoint database that compliments the sand level data which provides visual evidence of change. Ensure the strongest possible protection within the Planning and Design Code for coastal reserves (recreation now, buffer zones in the future). Where possible, seek to extend coastal reserves.	Low (Hazard)	CPB, Council, DEW, Department for Housing and Urban Development (DHUD)

Component	Issue	Proposed Action	Priority	Key Players
Coastal reserves	Narrow reserves under threat to climate change (sea level rise and changing wave climate).	Maintain reserves as buffer areas as detailed in Coastal Adaptation Plan (see beaches and dunes above).	Low (Hazard)	Council., CPB
SteamRanger rail corridor	Weed control within the rail corridor does not align with priority weed control in surrounding dunes and reserves.	SteamRanger to develop an Environmental Management Plan referencing regional weed and restoration priorities and other local environmental plans.	High (cons/ threat)	SteamRanger, NAC business/ contractors/rangers, Council, LHF
	Safety for pedestrians crossing rail corridor via unauthorised and informal access paths.	Assessment of unauthorised and informal access paths and support for sight line safety within rail corridor. Closing of identified pathways through revegetation with local coastal species or temporary fencing.	High (threat)	SteamRanger, Council,
Hindmarsh River Estuary banks and floodplain	Improve strategic planning and management approach to deliver positive and coordinated outcomes for estuary habitats.	Development of Hindmarsh River Estuary strategic management plan across agencies and land mangers addressing the need for improved monitoring of ecological communities, connectivity with marine systems and water quality conditions within the Estuary.	High (Cons/ threat)	Council, DEW, EPA, SA Water, LHF, NAC business/ contractors/rangers, coastal community groups
		Undertake hydrological study of the Hindmarsh catchment to determine surface and ground water inputs.	Medium (cons)	DEW, LHF, Council
	Limited monitoring of overall estuary health, flow and habitat requirements for functioning system.	Increased knowledge of estuaries through monitoring of overall catchment health (e.g. water quality, flow patterns, habitat and species) is essential for conserving the ecological value of these systems.	High (cons/ threat)	DEW, Council, NAC business/ contractors/rangers, LHF
		Determine current water quality, nutrient and flow from historical baseline information (2016 onwards) to assess condition improvement. Conduct Rapid Appraisal Riparian Condition (RARC) or similar for vegetation communities to compare current to historical condition.	High (Cons/ threat)	Council, Landscape Boards, EPA
	Small areas of remnant vegetation adjacent to the river (including north of Lamont Road show significant biodiversity values.	Significance of small areas of vegetation within the river floodplain needs recognition through proactive management: assess opportunities to establish buffers; signage.	High (Cons / threat)	Council, Community groups.
		Integration of high biodiversity site (former Toc H campsite) following council purchase into reserve system along upper estuary with ongoing threat control and restoration work to be undertaken.	High (Cons)	Council, Community groups.
	Limited protection and awareness of EPBC listed Threatened ecological community – subtropical and temperate coastal saltmarsh.	Increased protection from weed incursion, development and disturbance through site restoration and increased community awareness.	High (cons)	Council, coastal community group, NAC business/ contractors/rangers, LHF
		Formal assessment of vegetation communities to determine listing on the national register of protected sites	High (cons)	Council, LHF, DEW, coastal community group,
	These tide dependent habitats are threatened by climate change induced accelerated sea level rise.	Update DEW Coastal Saltmarsh/Mangrove / Swamp Paper-bark (*Melaleuca halmaturorum*) spatial habitat mapping to capture changes in the extent and different habitat types of saltmarsh ecosystems in South Australia since the original mapping was undertaken over 20 years ago.	High (Cons/threat	DEW, CPB, universities and research institutions
	Population of native Swamp Rat *(Rattus lutreolus*) at the estuary of Hindmarsh River regularly sighted by community and confused with introduced Black Rat (*Rattus rattus*) species with unwarranted calls for removal.	Increased community awareness of local native swamp rat population and benefits for local environments.	Medium (cons)	Council, coastal community groups NAC business/ contractors/rangers,

Component	Issue	Proposed Action	Priority	Key Players
Hindmarsh River Estuary banks and floodplain	Conservation of Swamp Paper-bark (*Melaleuca halmaturorum*) habitats threatened by erosion	Assess impact of erosion in estuary through to upper reaches. Undertake restoration activities to protect existing plants and consider revegetation options.	Medium (cons)	Council, Community groups.
	Opportunity to reintroduce locally extinct butterfly species.	Yellowish Sedge Skipper reintroduction in remnant *Gahnia filum* habitat following restoration of older host plants.	Medium (cons)	Council, LHF, NAC business/ contractors/rangers, coastal community groups
	Fauna and flora biodiversity connectivity across landscape to maintain habitats.	Maintain and increase planting and habitats for priority species such as Black-chinned Honeyeater (located upstream).	High (cons/ threat)	Council, LHF, NAC business/ contractors/rangers, coastal community groups
		Strengthen connectivity between coastal ecosystems and nature corridors (Hindmarsh and Inman Rivers) increasing flora and fauna resilience to progressive climate change.	High (cons/ threat)	Council, LHF, NAC business/ contractors/rangers, coastal community groups, land managers
	Protection of natural assets of high conservation values.	Support the introduction and implementation of Council by-laws related to dogs on lead in estuaries and high value areas.	High (threat)	Council, land owners, community, coastal community groups
		Opportunity to extend dogs on leash areas, including Estuary areas, and allowing for buffer zones and family-friendly areas.	High (cons)	Council
	Estuary entrance currently opened / closed by Council largely for recreational/amenity reasons.	Develop an Estuary Entrance Management Support System (EEMSS). (1), including a framework for decision makers considering both the ecological and infrastructure/amenity concerns.	High (Cons / Soc / Econ)	Council. DEW, LHF, EPA, NAC business/ contractors/rangers,
		Review opportunities to increase environmental flow through Water Allocation Planning (WAP), WWTP, low flow bypass on farm dams and other local opportunities to improve connectivity with marine environments.	Medium (cons)	Council. DEW, LHF
Inman River Estuary dunes, foreshore and wetland	Improve strategic planning and conservation efforts.	Active planning and priority for further weed control, re-planting as coastal dunes and a small wetland.	Medium (Cons)	Council, coastal community groups, NAC business/ contractors/rangers,
Granite Island	Heavy visitor foot pressure. Many weeds and exotic plantings. Heavy visitor foot pressure. Many weeds and exotic plantings.	Increased community awareness (including interpretive signage at strategic locations such as lookouts, along boardwalks), of damage caused by trampling of vegetation and nesting areas and volunteer effort by coastal community groups.	High (cons/ threat)	Council, coastal community groups, SA Whale Centre
		Ongoing maintenance of existing boardwalks and formal paths. Closure and rehabilitation of informal tracks, such as on the southern side of the island.	Medium (cons)	NPWSSA, Friends of Granite Island, NAC business/ contractors/rangers,
		Continue implementation of Fleurieu Islands Biodiversity Action Plan.	High (cons)	DEW, NPWSSA, Friends of Granite Island, LHF, NAC business/ contractors/rangers,
	Fall in Little Penguin (*Eudyptula minor novaehollandiae*) numbers over last decade and limited recovery of population.	Support research to monitor population, threatening process and slow species recovery.	High (Cons/ Soc / Econ)	DEW, NPWSSA, Friends of Granite Island, Flinders University, Council, LHF, NAC business/ contractors/rangers,
		Develop a site-specific management plan for Granite Island Little Penguins. (Dann 2016).	Medium (cons)	DEW, NPWSSA, Friends of Granite Island, Flinders University, Council, LHF, NAC business/ contractors/rangers,
		Opportunity for cross-regional collaboration to review and continue to implement Gulf St Vincent Assessment Plan for Little Penguins.	High (cons)	DEW, NPWSSA, , Flinders University, LHF, Northern and Yorke and KI landscape boards

Component	Issue	Proposed Action	Priority	Key Players
Granite Island	Fall in Little Penguin (*Eudyptula minor novaehollandiae*) numbers over last decade and limited recovery of population.	Review the state assessment (from 2016) of conservation status for Little Penguin considering recent declines reported in several regions.	High (cons)	DEW, NPWSSA, Universities, Landscape Boards
	Protect marine mammals, ground dwelling and nesting species on the island (Little Penguins, Brown Quail, Buff-banded Rail, Sooty Oystercatcher populations).	Increased community awareness of nesting areas, habitat requirements and respect sensitive areas.	Medium (cons)	NPWSSA, Friends of Granite Island, Flinders University, Council.
		Undertake pest control (Black Rat, Cat, Fox, Pigeon) control measures on island.	High (threat)	NPWSSA, Council
		Ongoing vigilance to ensure that foxes, dogs and cats are excluded from the island, awareness programs for local pet owners (dogs and cats).	High (threat)	NPWSSA, Council
		Greater community awareness of variety of marine mammals using this island (particularly pinnipeds for haul out sites) and surrounding waters.	Medium (cons)	NPWSSA, Council
Granite and Seal Islands	Offshore island management of weeds.	Implement the Fleurieu Islands Biodiversity Action Plan for priority weed species	High (threat/ cons)	NPWSSA, Friends of Granite Island, LHF, NAC business/ contractors/rangers,
	Protection of seabird and shorebird breeding areas.	Implement the Fleurieu Islands biodiversity action plan actions for priority weed species.	High (cons/ threat)	NPWSSA, Friends of Granite Island, LHF, NAC business/ contractors/rangers,
		Continue to monitor Fleurieu seabird population (Fleurieu seabird monitoring program) and support citizen science opportunities for changes in population, breeding sites and threats.	High (cons/ threat)	BirdLife Australia, SA Shorebirds, NPWSSA, LHF, Council, NAC business/ contractors/rangers,
Beach-nesting birds	Hooded Plover nests and breeding areas threatened by disturbance by walkers and dogs.	Community monitoring, fences to mark nests. Signage and awareness raising activities to alert dog walkers.	High (Cons / threat)	Council, BirdLife Australia Australia, LHF, NAC business/ contractors/rangers, Friends of the Hooded Plover, Fleurieu Peninsula volunteers coastal community groups, Oystercatcher monitoring volunteers
	Limited community knowledge of local conservation values and threats.	Provide education opportunities to raise awareness and protection of beach-nesting birds, such as Hooded Plovers, Red-capped Plovers and Sooty Oystercatchers (dogs on leads, nesting sites, citizen science projects, managing visitor and vehicle patrol disturbance).	High (cons)	Council, BirdLife Australia Australia, LHF, NAC business/ contractors/rangers, Friends of the Hooded Plover, Fleurieu Peninsula volunteers, coastal community groups, Oystercatcher monitoring volunteers
	Protection of natural assets of high conservation values.	Support the introduction and implementation of Council by-laws related to dogs on lead in estuaries and high value areas.	High (threat)	Council, land owners, community, coastal community groups
		Opportunity to extend dogs on leash areas, including Estuary areas, and allowing for buffer zones and family-friendly areas.	High (threat)	Council
	Incursion of multiple dune grass weed species is limiting suitable habitat for beach-nesting birds	Support the staged removal of introduced weedy grasses and restoration of spinifex dunes.	High (threat/ cons)	Council, Land managers, LHF, NAC business/ contractors/rangers, coastal Community groups, Friends of the Hooded Plover, Fleurieu Peninsula volunteers
		Increase community awareness of habitat needs for beach-nesting bird species.	High (cons)	Council, Land managers, LHF, coastal community groups, Friends of the Hooded Plover, Fleurieu Peninsula volunteers
Nearshore habitats (Reef, Seagrass)	Sediments and nutrients via Inman and Hindmarsh Rivers.	Support initiatives for catchment revegetation and improved land management practices.	High (cons/ threat)	City of Victor Harbor, LHF, NAC business/ contractors/rangers,

Component	Issue	Proposed Action	Priority	Key Players
Nearshore habitats (Reef, Seagrass)	Sediments and nutrients via stormwater drains pose threat to local benthic habitats.	Support initiatives to collect and reuse stormwater (See Victor Harbor Stormwater Management Plan 2024)	Medium (cons/ threat)	City of Victor Harbor, LHF
		Long term baseline condition monitoring of reef habitats and those in the "Encounter subregion" will be important to assess any impacts from future development and urban infill.	High (threat)	DEW, NPWSSA Landscape Boards
	Lack of knowledge of seagrass condition and species diversity in Encounter Bay.	Collaboration between government agencies, researchers, and community to monitor seagrass cover, species diversity, condition and inform active management.	Medium cons/(threat)	DEW, SARDI, EPA, SA Water, LHF, NPWSSA, Universities, Council, Community
		Investigate opportunities to support reduction of land based impacts to avoid further loss, promote natural recovery of seagrasses and investigate potential for assisted restoration of seagrass habitats with community	High (cons/threat)	DEW, LHF, SARDI, NPWSSA, Council
Nearshore habitats (Sand)	Erosion of beach.	Support initiatives to mitigate beach erosion (Coastal Adaptation Study and Strategy 2021).	Medium (threat/ hazard)	City of Victor Harbor, DEW, CPB
Climate (Creek/ Estuary)	More intense rainfall events likely to lead to increased pollutants washed into the estuary during first flush from the landward end.	Monitor stormwater quality and estuary condition.	Medium (threat)	Council, coastal community groups, land owners, LHF
	Higher temperatures likely to lead to increased algal blooms with impacts on estuarine fauna.	Monitor stormwater quality and estuary condition.	Medium (threat)	Council, DEW, landowners, LHF
Climate (Seasonal freshwater soaks to rear of dunes)	There is evidence of freshwater soaks to the rear of some sections of the sand dunes ie presence of other freshwater sedge species. There is also freshwater pooling of these lower lying areas following high rainfall events and ongoing issues with managing stormwater from incremental land divisions. With more intense rainfall events, the combined interaction of seasonal flooding and interactions with rising saline ground water from sea level rise is increasingly uncertain.	Prior to any major land division of the lower lying lands /seasonal floodplains behind the dunes, a study, including piezometer testing to ascertain combine risk from rising saline ground water due to sea level rise and seasonal and high rainfall events. This research should be part of stormwater management planning for infill development in these lower lying areas.	Medium (threat)	Developers, Council, CPB
Climate (Beach and dunes)	Increased sea levels and more intense storms and higher winds can contribute to more frequent and intense wave action, which accelerates beach and dune erosion. Predicted increases in aridity can lead to reduced vegetation cover and increased dune drift and dune mobility.	Restrict public access to fragile dunes and implement restoration of native plant species.	Medium (threat)	Council, coastal community groups, DEW, NAC business/ contractors/rangers, LHF
		Implement restoration of native plant species.	Medium (threat)	Council, coastal community groups, DEW, NAC business/ contractors/rangers, LHF
		Monitoring of cross-shore dune, beach and nearshore sand level profiles.	Low (Hazard) Medium (cons/threat)	DEW CPB, Research Institutions, Universities.
		Monitor recession rate of beaches and sand dunes.	Medium (threat)	Council, coastal community groups, DEW, LHF
		Update DEW Coastal Hazard Mapping spatial layer identifying the change in extent and stability of coastal dunes across South Australia since the previous hazard mapping was undertaken approximately 20 years ago	Medium (hazard) Medium (cons/ threat)	DEW, CPB, Research Institutes, Universities
		Beach and dune topographic and photogrammetry drone surveys to provide detailed 2D and 3D digital surface models for monitoring changes to the coastal landforms over time in response to climate change.	Medium (Hazard) Medium (cons/threat)	DEW CPB, Research Institutions, Universities.
		Support cultural monitoring and communications to protect significant known heritage sites	High (threat)	NAC, First nations business/ contractors/ rangers, Council, DEW, LHF, coastal community groups

Component	Issue	Proposed Action	Priority	Key Players
Climate (Beach and dunes)	Impacts of sea level rise combined with existing stormwater and pedestrian access threaten the integrity and protection values of dunes at Victor Central.	Design and implement a program to consolidate and vegetate the dune system from the Inman River to the causeway. Remove gaps (storm water outlets and pedestrian points).	High (threat)	Council, coastal community groups, LHF, NAC business/ contractors/rangers,
Climate (Macroalgal reefs)	More intense rainfall events likely to lead to increased pollutants, nutrients and suspended sediments washed into coastal waters especially during first flush.	Monitor stormwater quality.	Medium (threat)	Council, DEW, LHF
	Increased storm surge can cause dislodgment of algae and seagrasses.	Monitor stormwater quality.	Medium (threat)	Council, DEW, LHF
	Higher temperatures can lead to increased incidence and persistence of marine heatwaves and increased stress on temperate reefs and seagrasses, reducing biodiversity.	Monitor stormwater quality.	Medium (threat)	Council, DEW, LHF
	Ocean acidification can impact the life history of marine species.	Monitor stormwater quality.	Medium (threat)	Council, DEW, LHF
		Undertake benthic flora mapping to determine areas or opportunities for restoration.	High (cons)	DEW, Landscape Boards

(1) An Estuary Entrance Management Support System (EEMSS) has been developed by Deakin University and a number of Victorian Catchment Boards. This system takes into account a number of uses (including recreation use), conservation and hydrological factors in assisting with the decision to open or close an entrance (Arundel (2006) also refer to Appendix 15 in Caton et al 2007).

Relevant management plans

- Biodiversity and Natural Assets Management Plan: 2023 to 2028 (2023) City of Victor Harbor
- Environmental Management Plan: 2025 – 2030 (2025) City of Victor Harbor
- Hindmarsh River Estuary Action Plan (2010) Prepared by SKM for Adelaide and Mount Lofty Ranges NRM Board
- Inman River Estuary Action Plan (2010) Prepared by SKM for Adelaide and Mount Lofty Ranges NRM Board
- Caton B. Fotheringham D. Lock C. Royal M, Sandercock R. Taylor R. (2007). Southern Fleurieu Coastal Action Plan and Conservation Priority Study. Prepared for Adelaide and Mount Lofty NRM Board, Alexandrina Council, City of Victor Harbor, District Council of Yankalilla, Goolwa to Wellington Local Action Plan and Department for Environment and Heritage.
- Landscapes Hills and Fleurieu (2024) Hills and Fleurieu Regional Pest Plant and Animal Strategy 2024 - 2029.
- South Australian Recovery Plan for Eastern Osprey and White-bellied Sea Eagle (2022) Department for Environment and Water
- Ngarrindjeri Nation (2007) Ngarrindjeri Nation Yarluwar-Ruwe Plan. Caring for Ngarrindjeri Sea Country and Culture. (Ngarrindjeri Tendi, Ngarrindjeri Heritage Committee and Ngarrindjeri Native Title Management Committee, Ngarrindjeri Land and Progress Association, Meningie).
- Ngarrindjeri and Others Native Title Claim (Part A) settlement Indigenous Land Use Agreement (ILUA) (2017) Government of SA Attorney General's Department
- Kungun Ngarrindjeri Yunnan Agreement (2009) between South Australian Government and the Ngarrindjeri Regional Authority (NRA).
- Western, Bourman, and Hesp (2021) Coastal Adaptation Study (Stage 1) Coastal Adaptation Strategy (Stage 2) Final Report for City of Victor, Integrated Coasts, October 2021.
- Australian Water Environments (2013) Victor Harbor Coastal Management Study- FINAL REPORT. Prepared for the City of Victor Harbor.
- Victor Harbor Urban Stormwater Management Plan (2024) prepared by Southfront for the City of Victor Harbor
- Encounter Marine Park Management Plan (2012, amended 2020). Department for Environment and Water.
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Cell Biota (Flora and Fauna)

Lists provided are specific to this cell from Biological Database of South Australia (BDBSA), technical updates, review of publications and local input. Conservation ratings (National, State and Sub regional) are included for flora and fauna.

Note: Restricted species as per Department for Environment and Water (DEW) specifications have been omitted from the tables due to the size of cells and requirement for 10km^2 buffering of data. However, records are included in the total species numbers per cell. Please contact DEW directly for restricted data requests.

FLORA Summary

Vegetation Block Metrics	Granite Island Recreation Park and Seal Island (within West Island Conservation Park) Coastal Reserves (including dunes and estuary habitats) (Council)			
Terrestrial Habitat Description/s	See Terrestrial biodiversity vegetation communities in cell description.			
# Flora in cell	443			
# Native Flora in cell	277			
# Introduced Flora in cell	166			
# Conservation Rated Flora in cell	16* (3 National, 16 State)			
# Threatened Ecological Communities (EPBC Act)	1 (Subtropical and Temperate Saltmarsh) (Pending assessment- to be confirmed by survey)			
Conservation Rated Flora	**Species**	**Common Name**	**EPBC Act Status**	**NPW Status**
	Atriplex australasica	Native Orache		R
	Correa alba var. pannosa	White Correa		R
	*Crassula sieberiana^*	Sieber's Crassula		E
	*Dianella longifolia var. grandis^*	Pale Flax-lily		R
	Eucalyptus fasciculosa	Pink Gum		R
	*Glycine latrobeana^*	Clover Glycine	VU	V
	Myoporum parvifolium	Creeping Boobialla		R
	*Olearia pannosa ssp. Pannosa^*	Silver Daisy-bush	VU	V
	*Ottelia ovalifolia ssp. ovalifolia^*	Swamp Lily		R
	Picris squarrosa	Squat Picris		R
	*Pseudanthus micranthus^*	Fringed Pseudanthus		R
	Rytidosperma laeve	Smooth Wallaby-grass		R
	Scutellaria humilis	Dwarf Skullcap		R
	Spyridium coactilifolium	Butterfly Spyridium	VU	V
	Xanthorrhoea semiplana ssp. tateana	Tate's Grass-tree		R

All Native Flora in cell

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Acacia acinacea	Wreath Wattle			RA
Acacia cupularis	Cup Wattle			RA
Acacia longifolia ssp. sophorae	Coastal Wattle			LC
*Acacia myrtifolia^*	Myrtle Wattle			LC
Acacia nematophylla	Coast Wallowa			CR
Acacia paradoxa	Kangaroo Thorn			LC
Acacia pycnantha	Golden Wattle			LC
Acacia spinescens	Spiny Wattle			LC
Acacia verticillata ssp. ovoidea	Prickly Moses			NT
Acianthus pusillus	Mosquito Orchid			LC
*Acrotriche serrulata^*	Cushion Ground-berry			LC
Adenanthos terminalis	Yellow Gland-flower			NT
Adriana quadripartita	Coast Bitter-bush			NT
Allocasuarina pusilla	Dwarf Oak-bush			NT
Allocasuarina striata	Stalked Oak-bush			LC
Allocasuarina verticillata	Drooping Sheoak			LC
Amyema miquelii	Box Mistletoe			LC
Amyema preissii	Wire-leaf Mistletoe			NT
Apium annuum	Annual Celery			RA
Apium prostratum var. filiforme	Native Celery			LC
Apium prostratum var. prostratum	Native Celery			LC
Arthropodium strictum	Common Vanilla-lily			LC
Asparagopsis armata				
Atriplex acutibractea ssp. acutibractea	Pointed Saltbush			
Atriplex australasica	Native Orache		R	EN
Atriplex cinerea	Coast Saltbush			LC
Atriplex semibaccata	Berry Saltbush			LC
Austrophyllis alcicornis				
Austrostipa flavescens	Coast Spear-grass			LC
Austrostipa nitida	Balcarra Spear-grass			NT
Austrostipa nodosa	Tall Spear-grass			LC
Austrostipa scabra ssp. falcata	Slender Spear-grass			LC
*Austrostipa spp.^*	Spear Grass			
Austrostipa stipoides	Coast Spear-grass			VU
Banksia marginata	Silver Banksia			LC
Banksia ornata	Desert Banksia			NT
Billardiera cymosa ssp.	Sweet Apple-berry			
Billardiera cymosa ssp. cymosa	Sweet Apple-berry			LC
Brachyloma ericoides ssp.	Brush Heath			
Brachyloma ericoides ssp. ericoides	Brush Heath			LC
Bulbine bulbosa	Bulbine-lily			NT
Burchardia umbellata	Milkmaids			LC
Bursaria spinosa ssp. spinosa	Sweet Bursaria			LC
Caesia calliantha	Blue Grass-lily			LC
Caladenia latifolia	Pink Caladenia			NT
*Callistemon sieberi^*	River Bottlebrush			
Callitris glaucophylla	White Cypress-pine			

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Callitris gracilis	Southern Cypress Pine			LC
Calostemma purpureum	Pink Garland-lily			LC
Calystegia sepium	Large Bindweed			
Calytrix tetragona	Common Fringe-myrtle			LC
Carpobrotus rossii	Native Pigface			
Cassytha glabella f. dispar	Slender Dodder-laurel			LC
Cassytha melantha	Coarse Dodder-laurel			LC
Cassytha pubescens	Downy Dodder-laurel			LC
Centrolepis aristata	Pointed Centrolepis			LC
Centrolepis strigosa ssp. strigosa	Hairy Centrolepis			LC
Chamaescilla corymbosa var. corymbosa	Blue Squill			LC
Champia zostericola				
Cheilanthes austrotenuifolia	Annual Rock-fern			LC
Cladophora prolifera				
Clematis microphylla	Old Man's Beard			
Convolvulus angustissimus	Narrow-leaf Bindweed			
Convolvulus remotus	Grassy Bindweed			LC
Coronidium scorpioides	Button Everlasting			
Correa alba var. pannosa	White Correa		R	VU
Correa pulchella	Salmon Correa			RA
Correa reflexa var.				
Correa reflexa var. reflexa	Common Correa			
Correa reflexa var. scabridula	Common Correa			LC
Crassula closiana	Stalked Crassula			LC
Crassula colligata ssp. lamprosperma				LC
Crassula decumbens var. decumbens	Spreading Crassula			LC
*Crassula sieberiana^*	Sieber's Crassula		E	
Crouania shepleyana				
Cryptandra tomentosa	Heath Cryptandra			LC
Cullen australasicum	Tall Scurf-pea			RA
Cyperus gymnocaulos	Spiny Flat-sedge			LC
Cyperus vaginatus	Stiff Flat-sedge			LC
Cystophora platylobium				
Cystophora retorta				
Daviesia arenaria	Sand Bitter-pea			VU
Daviesia leptophylla	Narrow-leaf Bitter-pea			LC
Dianella brevicaulis	Short-stem Flax-lily			LC
*Dianella longifolia var. grandis^*	Pale Flax-lily		R	VU
Dianella revoluta var. revoluta	Black-anther Flax-lily			LC
Dichondra repens	Kidney Weed			LC
Dillwynia hispida	Red Parrot-pea			LC
Dillwynia sericea	Showy Parrot-pea			NT
Disphyma crassifolium ssp. clavellatum	Round-leaf Pigface			LC
Distichlis distichophylla	Emu-grass			LC
Diuris orientis	Wallflower Donkey-orchid			LC
Dodonaea viscosa ssp. angustissima	Narrow-leaf Hop-bush			RA
Dodonaea viscosa ssp. spatulata	Sticky Hop-bush			LC
Drosera auriculata/peltata	Sundew			
Drosera glanduligera	Scarlet Sundew			LC

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Drosera macrantha ssp. planchonii	Climbing Sundew			LC
Drosera whittakeri	Scented Sundew			LC
Duma florulenta	Lignum			VU
Dysphania pumilio	Small Crumbweed			LC
Ectocarpus siliculosus				
Einadia nutans ssp. nutans	Climbing Saltbush			LC
Enchylaena tomentosa var. tomentosa	Ruby Saltbush			LC
Eucalyptus albopurpurea	Purple-flowered Mallee Box			
*Eucalyptus baxteri^*	Brown Stringybark			LC
*Eucalyptus camaldulensis ssp. camaldulensis^*	River Red Gum			
Eucalyptus cladocalyx ssp.	Sugar Gum			
*Eucalyptus cosmophylla^*	Cup Gum			LC
Eucalyptus fasciculosa	Pink Gum		R	NT
Eucalyptus leucoxylon ssp. leucoxylon	South Australian Blue Gum			NT
*Eucalyptus obliqua^*	Messmate Stringybark			LC
Euphorbia dallachyana	Caustic Weed			
Exocarpos cupressiformis	Native Cherry			LC
Feldmannia irregularis				
Ficinia nodosa	Knobby Club-rush			LC
*Frankenia pauciflora var.^*	Southern Sea-heath			
Frankenia pauciflora var. gunnii	Southern Sea-heath			
Gahnia filum	Thatching Grass			VU
Gelidium australe				
Geranium homeanum				
Geranium retrorsum	Grassland Geranium			LC
Gloiosaccion brownii				
Glossodia major	Purple Cockatoo			LC
*Glycine latrobeana^*	Clover Glycine	VU	V	
Gonocarpus mezianus	Broad-leaf Raspwort			LC
Gonocarpus tetragynus	Small-leaf Raspwort			LC
Goodenia amplexans	Clasping Goodenia			NT
Goodenia ovata	Hop Goodenia			LC
Grevillea lavandulacea ssp. lavandulacea	Spider-flower			
Hakea rostrata	Beaked Hakea			LC
Hakea rugosa	Dwarf Hakea			NT
Halopteris pseudospicata				
Haloragis aspera	Rough Raspwort			RA
Halymenia muelleri				
Halymenia plana				
Heliotropium europaeum	Common Heliotrope			LC
Hibbertia devitata	Smooth Guinea-flower			LC
*Hibbertia exutiacies^*	Prickly Guinea-flower			LC
Hibbertia riparia	Bristly Guinea-flower			LC
Hibbertia sericea	Silky Guinea-flower			
Hormosira banksii f. banksii				
Hydrocotyle callicarpa	Tiny Pennywort			LC
Hypnea charoides				
Hypolaena fastigiata	Tassel Rope-rush			LC
Indigofera australis ssp. australis	Austral Indigo			

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Isopogon ceratophyllus	Horny Cone-bush			LC
*Ixodia achillaeoides ssp. achillaeoides^*	Coast Ixodia			
Juncus bufonius	Toad Rush			LC
Juncus kraussii	Sea Rush			LC
Juncus pauciflorus	Loose-flower Rush			NT
Juncus subsecundus	Finger Rush			LC
Kunzea pomifera	Muntries			RA
Lachnagrostis billardierei ssp. billardierei	Coast Blown-grass			RA
Lachnagrostis filiformis	Common Blown-grass			LC
Leathesia difformis				
Leiocarpa supina	Coast Plover-daisy			RA
Lepidobolus drapetocoleus	Scale Shedder			NT
Lepidosperma carphoides	Black Rapier-sedge			LC
Lepidosperma congestum	Clustered Sword-sedge			NT
Lepidosperma gladiatum	Coast Sword-sedge			NT
Lepidosperma hispidulum	Spreading Sword-sedge			
*Lepidosperma semiteres^*	Wire Rapier-sedge			LC
Lepidosperma viscidum	Sticky Sword-sedge			LC
Leporella fimbriata	Fringed Hare-orchid			LC
Leptospermum myrsinoides	Heath Tea-tree			LC
Leucophyta brownii	Coast Cushion Bush			LC
*Leucopogon parviflorus^*	Coast Beard-heath			LC
Leucopogon virgatus var. virgatus	Common Beard-heath			LC
Levenhookia dubia	Hairy Stylewort			LC
Lomandra densiflora	Soft Tussock Mat-rush			LC
*Lomandra effusa^*	Scented Mat-rush			LC
Lomandra juncea	Desert Mat-rush			NT
Lomandra micrantha ssp.	Small-flower Mat-rush			
Lomandra multiflora ssp. dura	Hard Mat-rush			LC
Lomandra nana	Small Mat-rush			LC
Lotus australis	Austral Trefoil			NT
Luzula meridionalis	Common Wood-rush			LC
Lycopus australis	Australian Gipsywort			NT
Lysiana exocarpi ssp. exocarpi	Harlequin Mistletoe			LC
Lythrum hyssopifolia	Lesser Loosestrife			LC
Machaerina juncea	Bare Twig-rush			LC
Maireana enchylaenoides	Wingless Fissure-plant			LC
Melaleuca decussata	Totem-poles			LC
Melaleuca halmaturorum	Swamp Paper-bark			VU
Melaleuca lanceolata	Dryland Tea-tree			NT
Metagoniolithon stelliferum				
Millotia myosotidifolia	Broad-leaf Millotia			NT
Muehlenbeckia adpressa	Climbing Lignum			LC
Muehlenbeckia gunnii	Coastal Climbing Lignum			LC
Myoporum insulare	Common Boobialla			LC
Myoporum montanum	Native Myrtle			DD
Myoporum parvifolium	Creeping Boobialla		R	
Myoporum petiolatum	Sticky Boobialla			
Nicotiana maritima	Coast Tobacco			NT

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Nitraria billardierei	Nitre-bush			RA
Olearia axillaris	Coast Daisy-bush			LC
*Olearia pannosa ssp. Pannosa^*	Silver Daisy-bush	VU	V	VU
Olearia ramulosa	Twiggy Daisy-bush			LC
Opercularia scabrida	Stalked Stinkweed			NT
Opercularia turpis	Twiggy Stinkweed			LC
*Ottelia ovalifolia ssp. ovalifolia^*	Swamp Lily		R	
Oxalis perennans	Native Sorrel			LC
Pelargonium australe	Austral Stork's-bill			NT
Phragmites australis	Common Reed			LC
Phyllangium divergens	Wiry Mitrewort			LC
Picris squarrosa	Squat Picris		R	EN
Pimelea glauca	Smooth Riceflower			LC
Pimelea serpyllifolia ssp. serpyllifolia	Thyme Riceflower			LC
Pimelea stricta	Erect Riceflower			LC
Platoma foliosum				
Platylobium obtusangulum	Holly Flat-pea			LC
Poa labillardieri var. labillardieri	Common Tussock-grass			NT
Poa poiformis var. poiformis	Coast Tussock-grass			LC
Polysiphonia decipiens				
Portulaca oleracea	Common Purslane			LC
*Pseudanthus micranthus^*	Fringed Pseudanthus		R	RA
Pseudognaphalium luteoalbum	Jersey Cudweed			LC
Pteridium esculentum ssp. esculentum	Bracken Fern			LC
Pterostylis pedunculata	Maroon-hood			LC
Ptilocladia pulchra				
Puccinellia stricta	Australian Saltmarsh-grass			NT
Pultenaea daphnoides	Large-leaf Bush Pea			LC
Pultenaea trinervis	Three-nerve Bush-pea			LC
Pyrorchis nigricans	Black Fire-orchid			LC
Rhagodia candolleana ssp. candolleana	Sea-berry Saltbush			LC
Rhagodia parabolica	Mealy Saltbush			RA
Rhagodia spinescens	Spiny Saltbush			RA
Ruppia megacarpa	Widgeon Grass			RA
Rytidosperma caespitosum	Common Wallaby-grass			LC
Rytidosperma laeve	Smooth Wallaby-grass		R	RA
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass			LC
Rytidosperma setaceum	Small-flower Wallaby-grass			LC
*Rytidosperma spp.^*	Wallaby Grass			
Sagina maritima	Sea Pearlwort			LC
Salicornia blackiana	Thick-head Samphire			RA
Salicornia quinqueflora ssp. quinqueflora	Beaded Samphire			NT
Salsola australis	Buckbush			LC
Samolus repens	Creeping Brookweed			NT
Sargassum varians				
Scaevola albida	Pale Fanflower			LC
Scaevola angustata	Coast Fanflower			CR
Scaevola crassifolia	Cushion Fanflower			RA
Schoenus apogon	Common Bog-rush			LC

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Scutellaria humilis	Dwarf Skullcap		R	NT
Senecio hispidulus	Rough Groundsel			LC
Senecio odoratus	Scented Groundsel			
Senecio picridioides	Purple-leaf Groundsel			LC
Setaria constricta	Knotty-butt Paspalidium			NT
Siloxerus multiflorus	Small Wrinklewort			LC
Spergularia marina	Salt Sand-spurrey			
Spergularia tasmanica	Coast Sand-spurrey			
Spinifex hirsutus	Rolling Spinifex			
Sporobolus virginicus	Salt Couch			LC
Sporochnus radiciformis				
Spyridium coactilifolium	Butterfly Spyridium	VU	V	VU
Stenanthera conostephioides	Flame Heath			LC
Styphelia exarrhena	Desert Heath			RA
Styphelia humifusa	Cranberry Heath			LC
Styphelia rufa	Ruddy Beard-heath			NT
Suaeda australis	Austral Seablite			NT
Tetragonia implexicoma	Bower Spinach			LC
Tetragonia tetragonoides	New Zealand Spinach			VU
Thelymitra rubra	Salmon Sun-orchid			LC
Themeda triandra	Kangaroo Grass			LC
Threlkeldia diffusa	Coast Bonefruit			NT
Thysanotus patersonii	Twining Fringe-lily			LC
Trachymene pilosa	Dwarf Trachymene			NT
Tricoryne elatior	Yellow Rush-lily			
Tricoryne tenella	Tufted Yellow Rush-lily			LC
Trithamnion gracilissimum				
Vittadinia cuneata var. cuneata	Fuzzy New Holland Daisy			LC
Wahlenbergia gracilis	Sprawling Bluebell			RA
Wahlenbergia stricta ssp. stricta	Tall Bluebell			LC
Wilsonia backhousei	Narrow-leaf Wilsonia			VU
Xanthorrhoea semiplana ssp. semiplana	Yacca			LC
Xanthorrhoea semiplana ssp. tateana	Tate's Grass-tree		R	NT

^ denotes records from technical updates, review of publications and local input
*See Appendices for subregional map

Regional Conservation status, Mount Lofty Ranges IBRA (Interim Biogeographical Regionalisation for Australia) subregion (Gillam & Urban (2014). Regional Species Conservation Assessment Project, Phase 1 Report - Regional Species Status Assessments, Adelaide and Mount Lofty Ranges NRM Region. DEWNR: SA)

RE = Regionally Extinct	CR = Critically Endangered	EN = Endangered
VU = Vulnerable	RA = Rare	NT = Near Threatened
LC = Least Concern	DD = Data Deficient	NE = Not Evaluated

All Introduced Flora in cell

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Acacia Cyclops	Western Coastal Wattle	IC		
Acacia longifolia ssp. longifolia	Sallow Wattle	IC		
Acacia saligna	Golden Wreath Wattle	HP		
*Aeonium spp.**	Tree Houseleek			
Agave americana	Century Plant	HP		
*Agave spp.**				
Aira cupaniana	Small Hair-grass			
*Aloe spp.**				
Amaryllis belladonna	Belladonna Lily			
Ammophila arenaria	Marram Grass	HP		
Arctotheca calendula	Cape Weed	HP		
Arctotis stoechadifolia	White Arctotis	IC		
Argyranthemum frutescens ssp.	Marguerite Daisy			
*Argyranthemum frutescens ssp. frutescens**	Marguerite Daisy	HP		
*Asparagus asparagoides**	Bridal creeper		Yes	Yes
Asparagus asparagoides f. asparagoides	Bridal Creeper (form)	IC	Yes	Yes
Asparagus officinalis	Asparagus			
Atriplex prostrata	Creeping Saltbush			
Avena barbata	Bearded Oat			
Avena barbata/fatua	Wild Oat			
Billardiera heterophylla	Blue-bell Creeper	IC	Yes	
Brassica tournefortii	Wild Turnip			
Briza maxima	Large Quaking-grass			
Briza minor	Lesser Quaking-grass			
Bromus catharticus	Prairie Grass			
Bromus diandrus	Great Brome			
Bromus hordeaceus ssp. hordeaceus	Soft Brome			
Bromus madritensis	Compact Brome			
Bromus rubens	Red Brome			
Cakile maritima ssp. maritima	Two-horned Sea Rocket			
*Cardamine flexuosa**	Wood Bitter-cress			
Catapodium rigidum	Rigid Fescue			
Cenchrus clandestinus	Kikuyu	HP		
Cerastium glomeratum	Common Mouse-ear Chickweed			
Chamaecytisus palmensis	Tree Lucerne			
Chenopodium album	Fat Hen			
Chenopodium glaucum	Glaucous Goosefoot			
Chenopodium murale	Nettle-leaf Goosefoot			
Chrysanthemoides monilifera ssp. monilifera	Boneseed	IC	Yes	Yes
Coprosma repens	New Zealand Mirror-bush	IC	Yes	
Cortaderia selloana	Pampas Grass			
Cotoneaster simonsii	Cotoneaster	IC		
Cotula coronopifolia	Water Buttons			
Cotyledon orbiculata var. orbiculata	Pig's Ear			
Cynodon dactylon var. dactylon	Couch			
Cynosurus echinatus	Rough Dog's-tail Grass			
*Delairea odorata**	Cape Ivy	IC		
Digitaria ciliaris	Summer Grass			

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Dimorphotheca fruticosa	Trailing African Daisy	HP		
Diplotaxis muralis	Wall Rocket			
Dipogon lignosus	Lavatory Creeper	IC	Yes	
Drosanthemum candens	Rodondo Creeper	IC		
Echium plantagineum	Salvation Jane		Yes	
Ehrharta calycina	Perennial Veldt Grass	HP		
Ehrharta erecta	Panic Veldt Grass			
Ehrharta longiflora	Annual Veldt Grass			
Eragrostis curvula	African Love-grass	IC	Yes	
Erigeron bonariensis	Flax-leaf Fleabane			
Erigeron sumatrensis	Tall Fleabane			
Erodium cicutarium	Cut-leaf Heron's-bill			
Eucalyptus gomphocephala	Tuart			
Eucalyptus platypus ssp. platypus	Round-leaved Moort			
Euphorbia paralias	Sea Spurge	HP		
Euphorbia terracina	False Caper	HP	Yes	
*Ferraria crispa ssp. crispa**	Black Flag	IC		
*Festuca rubra**	Red Fescue			
*Ficus macrophylla**	Moreton Bay Fig			
Foeniculum vulgare	Fennel			
Fumaria capreolata	White-flower Fumitory			
Gaudium laevigatum	Coast Tea-tree		Yes	
Gazania linearis	Gazania	IC	Yes	
*Gazania spp.**	Gazania		Yes	
Geranium molle	Soft Geranium			
Hakea drupacea				
*Hakea petiolaris ssp. trichophylla**				
Helminthotheca echioides	Ox-tongue			
Hordeum leporinum	Wall Barley-grass			
Hordeum marinum	Sea Barley-grass			
Hypochaeris glabra	Smooth Cat's Ear			
Hypochaeris radicata	Rough Cat's Ear			
Isolepis marginata	Little Club-rush			
Lactuca serriola f. serriola	Prickly Lettuce			
Lagunaria patersonii	Pyramid Tree	HP		
Lagurus ovatus	Hare's Tail Grass			
*Lampranthus glaucus**	Noon-flower			
Lantana camara	#N/A	#N/A	#N/A	#N/A
*Lantana camara**	Common Lantana			
Lepidium africanum	Common Peppercress			
Limonium binervosum	Dwarf Sea-lavender	IC		
Limonium companyonis	Sea-lavender	IC		
Lolium loliaceum	Stiff Ryegrass			
Lolium perenne	Perennial Ryegrass			
Lolium rigidum	Wimmera Ryegrass			
Lolium temulentum var. arvense	Bearded Ryegrass			
Lycium ferocissimum	African Boxthorn	IC	Yes	Yes
Lysimachia arvensis	Pimpernel			
Malva arborea	Tree Mallow	HP		
Malva parviflora	Small-flower Marshmallow			

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Marrubium vulgare	Horehound	IC	Yes	
Medicago polymorpha	Burr-medic			
Melaleuca armillaris ssp. armillaris	Bracelet Honey-myrtle	HP		
*Melaleuca hypericifolia**	Hillock Bush			
Melaleuca nesophila	Showy Honey Myrtle			
Melilotus indicus	King Island Melilot			
Nicotiana glauca	Tree Tobacco			
Oenothera stricta ssp. stricta	Common Evening Primrose			
Olea europaea ssp. europaea	Olive	IC		
Orobanche minor	Lesser Broomrape		Yes	
Oxalis pes-caprae	Soursob			
Parapholis incurva	Curly Ryegrass			
Paspalum dilatatum	Paspalum			
Paspalum vaginatum	Salt-water Couch			
Phalaris minor	Lesser Canary-grass			
Phoenix canariensis	Canary Island Palm			
Physalis peruviana	Cape Gooseberry			
Pinus halepensis	Aleppo Pine	IC	Yes	
Piptatherum miliaceum	Rice Millet			
Pittosporum undulatum	Sweet Pittosporum	IC	Yes	
Plantago coronopus ssp. coronopus	Bucks-horn Plantain			
Plantago lanceolata var. lanceolata	Ribwort			
Plantago major	Greater Plantain			
Polycarpon tetraphyllum	Four-leaf Allseed			
Polygala myrtifolia	Myrtle-leaf Milkwort	IC	Yes	
Polygonum aviculare	Wireweed			
Puccinellia distans	Reflexed Poa			
Puccinellia fasciculata	Borrer's Saltmarsh-grass			
Reichardia tingitana	False Sowthistle			
Rhamnus alaternus	Blowfly Bush	IC	Yes	
Romulea minutiflora	Small-flower Onion-grass			
Romulea rosea var. australis	Common Onion-grass			
Rostraria cristata	Annual Cat's-tail			
Rumex acetosella	Sorrel			
Rumex crispus	Curled Dock			
Rumex hypogaeus	Three-corner Jack	HP	Yes	
Rumex pulcher ssp. pulcher	Fiddle Dock			
Senecio pterophorus	African Daisy			
Sixalix atropurpurea	Pincushion	IC		
Solanum linnaeanum	Apple Of Sodom	HP	Yes	
*Solanum lycopersicum**	Tomato			
*Solanum mauritianum**	Wild Tobacco Tree			
Solanum nigrum	Black Nightshade			
Sonchus asper ssp.	Rough Sow-thistle			
Sonchus oleraceus	Common Sow-thistle			
Sparaxis bulbifera	Sparaxis	HP		
Sporobolus africanus	Rat-tail Grass	HP		
Stellaria media	Chickweed			
Stenotaphrum secundatum	Buffalo Grass	HP		
Symphyotrichum subulatum	Aster-weed	HP		

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Tamarix aphylla	Athel Pine		Yes	Yes
*Tamarix parviflora**	Athel Pine		Yes	
Tamarix ramosissima			Yes	
*Thinopyrum junceiforme**	Sea Wheat-grass	IC		
Trifolium angustifolium	Narrow-leaf Clover			
Trifolium arvense var. arvense	Hare's-foot Clover			
Trifolium campestre	Hop Clover			
Trifolium dubium	Suckling Clover			
Trifolium glomeratum	Cluster Clover			
Trifolium scabrum	Rough Clover			
*Ulex europaeus**	Gorse	IC	Yes	Yes
Verbascum virgatum	Twiggy Mullein	HP		
*Viola odorata**	Common Violet			
Vulpia bromoides	Squirrel-tail Fescue			
Vulpia fasciculata	Sand Fescue			
Vulpia myuros f.	Fescue			
Vulpia myuros f. myuros	Rat's-tail Fescue			
Watsonia meriana var. bulbillifera	Bulbil Watsonia	IC		

WONS = Weeds of National Significance.

Declared = Declared under the Landscape South Australia Act 2019. Pest plants that are a significant threat to agriculture, the natural environment and public health and safety are called declared plants. Land owners have a legal responsibility to manage these plants.

Red Alert = Weed Threat Level of four or greater out of nine. Plants in this categorised are either designated as requiring immediate control (IC – 6-9) or as a high priority for control (HP – 4-5). See Department for Environment and Water (2024)

Reference – Department for Environment and Water (2024). Threatening Processes - Environmental and Priority Weed Species. Southern Fleurieu Coastal Action Plan Review 2024. Prepared by SA Herbarium

FAUNA Summary

# Fauna in cell	187
# Native Fauna in cell	172
# Introduced Fauna in cell	15
# Conservation Rated Fauna in cell	35 (9 national, 33 state)

Conservation Rated Fauna				
Species	**Common Name**	**Class**	**EPBC Act Status**	**NPW Act Status**
Actitis hypoleucos	Common Sandpiper	AVES		R
Arenaria interpres interpres	Ruddy Turnstone	AVES	sp	R
Bubulcus ibis coromandus	Eastern Cattle Egret	AVES		R
*Cereopsis novaehollandiae novaehollandiae^*	Cape Barren Goose	AVES		R
Cladorhynchus leucocephalus	Banded Stilt	AVES		V
*Coturnix ypsilophora australis^*	Brown Quail	AVES		V
Egretta sacra sacra	Pacific Reef Heron	AVES		R
*Falco peregrinus macropus^*	Peregrine Falcon	AVES		R
Falcunculus frontatus frontatus	Eastern Shriketit	AVES		R
*Gallinago hardwickii^*	Latham's Snipe	AVES	VU	R
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	AVES		R
*Haematopus longirostris^*	Pied Oystercatcher	AVES		R
*Haliaeetus leucogaster^*	White-bellied Sea Eagle	AVES		E
*Larus dominicanus dominicanus^*	Kelp Gull	AVES		R
*Lewinia pectoralis pectoralis^*	Lewin's Rail	AVES		V
Macronectes giganteus	Southern Giant Petrel	AVES	EN	V
Melithreptus gularis	Black-chinned Honeyeater	AVES		ssp
Melithreptus gularis gularis	Black-chinned Honeyeater	AVES		V
*Myiagra inquieta^*	Restless Flycatcher	AVES		R
*Neophema elegans elegans^*	Elegant Parrot	AVES		R
*Pandion haliaetus cristatus^*	Eastern Osprey	AVES		E
Platycercus elegans	Crimson Rosella	AVES	ssp	
*Plegadis falcinellus^*	Glossy Ibis	AVES		R
*Spatula rhynchotis^*	Australasian Shoveler	AVES		R
Sternula nereis nereis	Fairy Tern	AVES	VU	E
Thinornis cucullatus cucullatus	Hooded Plover	AVES	VU	V
Tringa nebularia	Common Greenshank	AVES	EN	
*Zanda funerea whiteae^*	Yellow-tailed Black Cockatoo	AVES		V
*Zapornia tabuensis^*	Spotless Crake	AVES		R
*Pteropus poliocephalus^*	Grey-headed Flying-fox	MAM	VU	R
*Rattus lutreolus^*	Swamp Rat	MAM		R
*Tachyglossus aculeatus^*	Short-beaked Echidna	MAM	ssp	ssp
*Trichosurus vulpecula^*	Common Brushtail Possum	MAM		R
*Eulamprus heatwolei^*	Yellow-bellied Water Skink	REP		V
*Varanus rosenbergi^*	Heath Goanna	REP		V

All Native Fauna in cell

Species Name	Common Name	Class	EPBC Act Status	NPW Act Status	Subregional Status
Acanthopagrus butcheri	Black Bream	ACT			
Afurcagobius tamarensis	Tamar River Goby	ACT			
Aldrichetta forsteri	Yelloweye Mullet	ACT			
Arenigobius bifrenatus	Bridled Goby	ACT			
Argyrosomus japonicus	Mulloway	ACT			
Arripis trutta	Eastern Australian Salmon	ACT			
Atherinosoma microstoma	Smallmouth Hardyhead	ACT			LC
Bathygobius krefftii	Krefft's Frillgoby	ACT			
*Galaxias brevipinnis^*	Climbing Galaxias	ACT			
Galaxias maculatus	Common Galaxias	ACT			VU
Gracilimugil argentea	Goldspot Mullet	ACT			
Philypnodon grandiceps	Big-headed Gudgeon	ACT			LC
Philypnodon macrostomus	Dwarf Flathead Gudgeon	ACT			LC
Pseudaphritis urvillii	Congolli	ACT			EN
Pseudogobius olorum	Swan River Goby	ACT			LC
Crinia signifera	Common Froglet	AMP			NT
Limnodynastes dumerilii	Banjo Frog	AMP			NT
Limnodynastes tasmaniensis	Spotted Marsh Frog	AMP			NT
Neobatrachus sudellae	Sudell's Frog	AMP			
Rawlinsonia calliscelis	South Australian Tree Frog (MLR MN)	AMP			NT
*Rawlinsonia ewingi (NC)^*	Brown Tree Frog	AMP			
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	AVES			LC
Acanthiza lineata clelandi	Striated Thornbill (MLR, SE)	AVES			
Acanthorhynchus tenuirostris halmaturinus	Eastern Spinebill (KI, MLR, southern FR)	AVES			
Acrocephalus australis australis	Australian Reed Warbler	AVES			LC
Actitis hypoleucos	Common Sandpiper	AVES		R	RA
Anas castanea	Chestnut Teal	AVES			LC
Anas gracilis gracilis	Grey Teal	AVES			
Anas superciliosa	Pacific Black Duck	AVES			LC
Anthochaera carunculata	Red Wattlebird	AVES			LC
Anthochaera carunculata woodwardi	Red Wattlebird (MLR, AP, YP, EP, far west, Yellabinna)	AVES			
Anthochaera chrysoptera chrysoptera	Little Wattlebird (mainland SA)	AVES			
Anthus australis	Australian Pipit	AVES			LC
Apus pacificus pacificus	Pacific Swift	AVES			
Aquila audax audax	Wedge-tailed Eagle	AVES			RA
Ardea alba modesta	Great Egret	AVES			RA
Ardenna tenuirostris	Short-tailed Shearwater	AVES			
Arenaria interpres interpres	Ruddy Turnstone	AVES	sp	R	RA
Bubulcus ibis coromandus	Eastern Cattle Egret	AVES		R	RA
Cacatua galerita	Sulphur-crested Cockatoo	AVES			
Cacatua sanguinea gymnopis	Little Corella	AVES			LC
Calidris ruficollis	Red-necked Stint	AVES			NT
*Cereopsis novaehollandiae novaehollandiae^*	Cape Barren Goose	AVES		R	
Charadrius bicinctus bicinctus	Double-banded Plover	AVES			RA
Charadrius ruficapillus	Red-capped Plover	AVES			RA
Chenonetta jubata	Maned Duck	AVES			LC
Chroicocephalus novaehollandiae novaehollandiae	Silver Gull	AVES			LC
Cladorhynchus leucocephalus	Banded Stilt	AVES		V	VU
Colluricincla harmonica	Grey Shrikethrush	AVES			LC
Coracina novaehollandiae	Black-faced Cuckooshrike	AVES			LC

Species Name	Common Name	Class	EPBC Act Status	NPW Act Status	Subregional Status
Corvus mellori	Little Raven	AVES			LC
*Coturnix ypsilophora australis^*	Brown Quail	AVES		V	
Dacelo novaeguineae novaeguineae	Laughing Kookaburra	AVES			
Dicaeum hirundinaceum hirundinaceum	Mistletoebird	AVES			NT
Egretta novaehollandiae	White-faced Heron	AVES			LC
Egretta sacra sacra	Pacific Reef Heron	AVES		R	RA
Elanus axillaris	Black-shouldered Kite	AVES			LC
Elseyornis melanops	Black-fronted Dotterel	AVES			RA
Eolophus roseicapilla	Galah	AVES			LC
Eolophus roseicapilla albiceps	Galah (most of SA)	AVES			
Erythrogonys cinctus	Red-kneed Dotterel	AVES			RA
Eudyptes pachyrhynchus	Fiordland Penguin	AVES			
Eudyptula minor novaehollandiae	Little Penguin	AVES			
Falco cenchroides cenchroides	Nankeen Kestrel	AVES			LC
*Falco peregrinus macropus^*	Peregrine Falcon	AVES		R	RA
Falcunculus frontatus frontatus	Eastern Shriketit	AVES		R	
Fulica atra australis	Eurasian Coot	AVES			NT
*Gallinago hardwickii^*	Latham's Snipe	AVES	VU	R	RA
Gallinula tenebrosa tenebrosa	Dusky Moorhen	AVES			RA
Gallirallus philippensis mellori	Buff-banded Rail	AVES			RA
Gavicalis virescens	Singing Honeyeater	AVES			LC
Gavicalis virescens sonorus	Singing Honeyeater (EP, YP, FR, MN, AP, MM, coastal SE)	AVES			
Geopelia placida placida	Peaceful Dove	AVES			LC
Glossopsitta concinna	Musk Lorikeet	AVES			LC
Grallina cyanoleuca cyanoleuca	Magpielark	AVES			LC
Gymnorhina tibicen	Australian Magpie	AVES			LC
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	AVES		R	VU
*Haematopus longirostris^*	Pied Oystercatcher	AVES		R	VU
*Haliaeetus leucogaster^*	White-bellied Sea Eagle	AVES		E	EN
Hirundo neoxena neoxena	Welcome Swallow	AVES			LC
Hydroprogne caspia	Caspian Tern	AVES			LC
*Larus dominicanus dominicanus^*	Kelp Gull	AVES		R	RA
Larus pacificus georgii	Pacific Gull	AVES			LC
*Lewinia pectoralis pectoralis^*	Lewin's Rail	AVES		V	EN
Macronectes giganteus	Southern Giant Petrel	AVES	EN	V	
Malacorhynchus membranaceus	Pink-eared Duck	AVES			LC
Malurus cyaneus	Superb Fairywren	AVES			LC
Malurus cyaneus leggei	Superb Fairywren (Mainland SA)	AVES			
Melithreptus gularis	Black-chinned Honeyeater	AVES		ssp	
Melithreptus gularis gularis	Black-chinned Honeyeater	AVES		V	
Microcarbo melanoleucos melanoleucos	Little Pied Cormorant	AVES			LC
Morus serrator	Australasian Gannet	AVES			NT
*Myiagra inquieta^*	Restless Flycatcher	AVES		R	
Neochmia temporalis temporalis	Red-browed Finch	AVES			NT
*Neophema elegans elegans^*	Elegant Parrot	AVES		R	RA
Nycticorax caledonicus australasiae	Nankeen Night Heron	AVES			RA
Ocyphaps lophotes lophotes	Crested Pigeon	AVES			LC
Pachycephala fuliginosa fuliginosa	Western Whistler	AVES			
Pachyptila belcheri	Slender-billed Prion	AVES			RA
*Pandion haliaetus cristatus^*	Eastern Osprey	AVES		E	
Pardalotus punctatus	Spotted Pardalote	AVES			NT
Pardalotus striatus substriatus	Striated Pardalote	AVES			NT
Parvipsitta porphyrocephala	Purple-crowned Lorikeet	AVES			LC
Pelecanus conspicillatus	Australian Pelican	AVES			LC

Species Name	Common Name	Class	EPBC Act Status	NPW Act Status	Subregional Status
Petrochelidon nigricans neglecta	Tree Martin (all of SA)	AVES			
Phalacrocorax carbo	Great Cormorant	AVES			LC
Phalacrocorax fuscescens	Black-faced Cormorant	AVES			NT
Phalacrocorax sulcirostris	Little Black Cormorant	AVES			LC
Phalacrocorax varius hypoleucos	Australian Pied Cormorant	AVES			LC
Phylidonyris novaehollandiae	New Holland Honeyeater	AVES			LC
Phylidonyris novaehollandiae novaehollandiae	New Holland Honeyeater (mainland SA)	AVES			
Platycercus elegans	Crimson Rosella	AVES	ssp		LC
Platycercus elegans fleurieuensis & elegans subadelaidae	Adelaide Rosella (MN, AP, MLR)	AVES			
Platycercus eximius eximius	Eastern Rosella	AVES			
*Plegadis falcinellus^*	Glossy Ibis	AVES		R	VU
Poodytes gramineus goulburni	Little Grassbird	AVES			LC
Porphyrio melanotus melanotus	Australasian Swamphen	AVES			NT
Porzana fluminea	Australian Crake (Australian Spotted Crake)	AVES			RA
Psephotus haematonotus	Red-rumped Parrot	AVES			LC
Psephotus haematonotus haematonotus	Red-rumped Parrot (eastern SA except NE)	AVES			
Ptilotula ornata	Yellow-plumed Honeyeater	AVES			
Ptilotula penicillata	White-plumed Honeyeater	AVES			LC
Ptilotula penicillata penicillata	White-plumed Honeyeater (northern YP, MN, AP, MLR, LNE, MM, SE)	AVES			
Rhipidura albiscapa alisteri	Grey Fantail (southern SA)	AVES			
Rhipidura leucophrys leucophrys	Willie Wagtail	AVES			LC
Sericornis frontalis rosinae	White-browed Scrubwren (MLR)	AVES			
Smicrornis brevirostris	Weebill	AVES			RA
Smicrornis brevirostris occidentalis	Weebill (Yellabinna, Gawler Ranges, EP, YP, southern FR, MN, MLR, MM)	AVES			
*Spatula rhynchotis^*	Australasian Shoveler	AVES		R	NT
Sternula nereis nereis	Fairy Tern	AVES	VU	E	EN
Tachybaptus novaehollandiae novaehollandiae	Australasian Grebe	AVES			RA
Thalasseus bergii cristatus	Greater Crested Tern	AVES			LC
Thinornis cucullatus cucullatus	Hooded Plover	AVES	VU	V	EN
Tribonyx ventralis	Black-tailed Nativehen	AVES			LC
Trichoglossus moluccanus moluccanus	Rainbow Lorikeet	AVES			LC
Tringa nebularia	Common Greenshank	AVES	EN		NT
Vanellus miles	Masked Lapwing	AVES			LC
Vanellus miles novaehollandiae	Spur-winged Plover	AVES			
*Zanda funerea whiteae^*	Yellow-tailed Black Cockatoo	AVES		V	RA
*Zapornia tabuensis^*	Spotless Crake	AVES		R	RA
Zosterops lateralis	Silvereye	AVES			LC
Zosterops lateralis pinarochrous	Silvereye (EP, YP, FR, MLR, MM, SE)	AVES			
*Anisynta cynone cynone^*	Mottled Grass Skipper	INV			
*Cherax destructor^*	Common Yabbie	INV			
*Danaus petilia^*	Lesser Wanderer	INV			
*Danaus plexippus plexippus^*	Monarch	INV			
*Geitoneura klugii^*	Common Xenica	INV			
*Heteronympha merope merope^*	Common Brown	INV			
*Junonia villida calybe^*	Meadow Argus	INV			
*Lampides boeticus^*	Long-tailed Pea-blue	INV			
*Nacaduba biocellata biocellata^*	Two-spotted Line-blue	INV			
Ocybadistes walkeri hypochlora	Southern Grass-dart	INV			
*Pieris rapae rapae^*	Cabbage White	INV			
*Taractrocera papyria papyria^*	White-banded Grass-dart	INV			
*Theclinesthes miskini miskini^*	Wattle Blue	INV			

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*Theclinesthes serpentatus serpentatus^*	Salt-bush Blue	INV			
*Vanessa itea^*	Australian Admiral	INV			
*Vanessa kershawi^*	Australian Painted Lady	INV			
*Zizina otis labradus^*	Common Grass-blue	INV			
*Hydromys chrysogaster^*	Water Rat	MAM			NT
Macropus (Osphranter) robustus	Euro	MAM			
Macropus fuliginosus	Western Grey Kangaroo	MAM			LC
*Pseudocheirus peregrinus^*	Common Ringtail Possum	MAM			
*Pteropus poliocephalus^*	Grey-headed Flying-fox	MAM	VU	R	
*Rattus lutreolus^*	Swamp Rat	MAM		R	RA
*Tachyglossus aculeatus^*	Short-beaked Echidna	MAM	ssp	ssp	
*Trichosurus vulpecula^*	Common Brushtail Possum	MAM		R	
Ctenotus robustus	Eastern Striped Skink	REP			
*Eulamprus heatwolei^*	Yellow-bellied Water Skink	REP		V	
*Pseudemoia entrecasteauxii^*	Southern Grass Skink	REP			LC
*Tiliqua rugosa^*	Sleepy Lizard	REP			
*Varanus rosenbergi^*	Heath Goanna	REP		V	

Class: ACT = Actinopteri, **AMP** = Amphibia, **AVES** = Aves, **INV** = Invertebrates, **MAM** = Mammalia, **REP**= Reptilia

All Introduced Fauna in cell

Species	Common Name
*Acridotheres tristis^*	Common Myna
Carduelis carduelis britannica	European Goldfinch
Chloris chloris	European (Common) Greenfinch
Columba livia	Feral Pigeon
*Felis catus^*	Domestic Cat (Feral Cat)
Mugilogobius stigmaticus	Blackspot Mangrovegoby
*Mus musculus^*	House Mouse
*Oryctolagus cuniculus^*	Rabbit (European Rabbit)
Passer domesticus domesticus	House Sparrow
Perca fluviatilis	Redfin Perch
*Rattus rattus^*	Black Rat (Ship Rat, Roof Rat)
Spilopelia chinensis	Spotted Dove
Sturnus vulgaris vulgaris	Common Starling
Turdus merula merula	Common Blackbird
*Vulpes vulpes^*	Fox (Red Fox)

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